H1760

0057858

EBERLINE SERVICES

June 21, 2002

Ms. Joan Kessner
Bechtel Hanford Inc.
3350 George Washington Way
Richland, WA 99352
MSIN: H0-25

Reference: **P.O. #630**
Eberline Services R2-04-133-7267, SDG H1760

Dear Ms. Kessner:

Enclosed is the data report one solid sample designated under SAF No. B02-050 received at Eberline Services on April 30, 2002. The sample was analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Program Manager

MCM

Enclosure: Data Package

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Analytical Services
2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
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1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1760 was composed of one solid (soil) sample designated under SAF No. B02-050 with a Project Designation of: 216-Z-11 Ditch Borehole Samples.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.6 Isotopic Thorium Analyses

No problems were encountered during the course of the analyses.

2.7 Isotopic Uranium Analyses

No problems were encountered during the course of the analyses.

2.8 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

2.9 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.10 Transplutonic Analyses (Am-241 and Cm-243/244)

No problems were encountered during the course of the analyses.

2.11 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa Mannion — 6/21/02

Melissa C. Mannion
Program Manager

Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H1760

SDG 7267
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG_H1760

S U M M A R Y D A T A S E C T I O N

T A B L E O F C O N T E N T S

Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 06/21/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1760

SDG 7267
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H1760

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/21/02

SDG 7267
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG_H1760

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/21/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1760

SDG 7267
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1760

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B14DJ8	200 West	SOLID		R204133-01	B02-050	B02-050-01	04/23/02 12:40
Method Blank		SOLID		R204133-03	B02-050		
Lab Control Sample		SOLID		R204133-02	B02-050		
Duplicate (R204133-01)	200 West	SOLID		R204133-04	B02-050		04/23/02 12:40
Spike (R204133-01)	200 West	SOLID		R204133-05	B02-050		04/23/02 12:40

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 06/21/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1760

QC SUMMARY

SDG 7267
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H1760

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7267	B02-050-01	B14DJ8	SOLID	92.4	1161 g		04/30/02	7	R204133-01	7267-001
		Method Blank	SOLID						R204133-03	7267-003
		Lab Control Sample	SOLID						R204133-02	7267-002
		Duplicate (R204133-01)	SOLID	92.4	1161 g		04/30/02	7	R204133-04	7267-004
		Spike (R204133-01)	SOLID		1161 g		04/30/02	7	R204133-05	7267-005

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 06/21/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1760

SDG 7267
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1760

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
NP	SOLID	Neptunium in Soil	7024-201	5.0	1			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	7024-201	5.0	1			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Soil	7024-201	5.0	1			1	1	1/1		
TP	SOLID	Americium 241/Curium in Solids	7024-201	5.0	1			1	1	1/1		
U	SOLID	Uranium, Isotopic in Soil	7024-201	5.0	1			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	7024-201	10.0	1			1	1	1/1		
TC	SOLID	Technetium 99 in Soil	7024-201	10.0	1			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7024-201	15.0	1			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Soil	7024-201	10.0	1			1	1	1/1		
H	SOLID	Tritium in Soil	7024-201	10.0	1			1	1	1/1	1/1	X
NI_L	SOLID	Nickel 63 in Soil	7024-201	10.0	1			1	1	1/1		

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 06/21/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1760

WORK SUMMARY

SDG 7267
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H1760

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B14DJ8			R204133-01	7267-001	C		05/31/02	06/20/02	MCM	Carbon 14 in Soil
200 West		SOLID	04/23/02	7267-001	GAM		06/11/02	06/20/02	MCM	Gamma Scan
B02-050-01	B02-050		04/30/02	7267-001	H		06/08/02	06/20/02	MCM	Tritium in Soil
				7267-001	NI_L		06/12/02	06/20/02	MCM	Nickel 63 in Soil
				7267-001	NP		06/19/02	06/20/02	MCM	Neptunium in Soil
				7267-001	PU		06/13/02	06/20/02	MCM	Plutonium, Isotopic in Solids
				7267-001	SR		06/12/02	06/20/02	MCM	Total Strontium in Soil
				7267-001	TC		06/20/02	06/20/02	MCM	Technetium 99 in Soil
				7267-001	TH		06/13/02	06/20/02	MCM	Thorium, Isotopic in Soil
				7267-001	TP		06/15/02	06/20/02	MCM	Americium 241/Curium in Solids
				7267-001	U		06/11/02	06/20/02	MCM	Uranium, Isotopic in Soil
Method Blank			R204133-03	7267-003	C		05/31/02	06/20/02	MCM	Carbon 14 in Soil
		SOLID		7267-003	GAM		06/11/02	06/20/02	MCM	Gamma Scan
	B02-050			7267-003	H		06/08/02	06/20/02	MCM	Tritium in Soil
				7267-003	NI_L		06/12/02	06/20/02	MCM	Nickel 63 in Soil
				7267-003	NP		06/19/02	06/20/02	MCM	Neptunium in Soil
				7267-003	PU		06/13/02	06/20/02	MCM	Plutonium, Isotopic in Solids
				7267-003	SR		06/12/02	06/20/02	MCM	Total Strontium in Soil
				7267-003	TC		06/20/02	06/20/02	MCM	Technetium 99 in Soil
				7267-003	TH		06/13/02	06/20/02	MCM	Thorium, Isotopic in Soil
				7267-003	TP		06/15/02	06/20/02	MCM	Americium 241/Curium in Solids
				7267-003	U		06/11/02	06/20/02	MCM	Uranium, Isotopic in Soil
Lab Control Sample			R204133-02	7267-002	C		05/31/02	06/20/02	MCM	Carbon 14 in Soil
		SOLID		7267-002	GAM		06/10/02	06/20/02	MCM	Gamma Scan
	B02-050			7267-002	H		06/08/02	06/20/02	MCM	Tritium in Soil
				7267-002	NI_L		06/12/02	06/20/02	MCM	Nickel 63 in Soil
				7267-002	NP		06/19/02	06/20/02	MCM	Neptunium in Soil
				7267-002	PU		06/13/02	06/20/02	MCM	Plutonium, Isotopic in Solids
				7267-002	SR		06/12/02	06/20/02	MCM	Total Strontium in Soil
				7267-002	TC		06/20/02	06/20/02	MCM	Technetium 99 in Soil
				7267-002	TH		06/12/02	06/20/02	MCM	Thorium, Isotopic in Soil
				7267-002	TP		06/15/02	06/20/02	MCM	Americium 241/Curium in Solids
				7267-002	U		06/11/02	06/20/02	MCM	Uranium, Isotopic in Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 06/21/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1760

SDG 7267
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1760

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Duplicate (R204133-01)			R204133-04	7267-004	C		05/31/02	06/20/02	MCM	Carbon 14 in Soil
200 West		SOLID	04/23/02	7267-004	GAM		06/10/02	06/20/02	MCM	Gamma Scan
	B02-050		04/30/02	7267-004	H		06/08/02	06/20/02	MCM	Tritium in Soil
				7267-004	NI_L		06/12/02	06/20/02	MCM	Nickel 63 in Soil
				7267-004	NP		06/19/02	06/20/02	MCM	Neptunium in Soil
				7267-004	PU		06/13/02	06/20/02	MCM	Plutonium, Isotopic in Solids
				7267-004	SR		06/12/02	06/20/02	MCM	Total Strontium in Soil
				7267-004	TC		06/19/02	06/20/02	MCM	Technetium 99 in Soil
				7267-004	TH		06/13/02	06/20/02	MCM	Thorium, Isotopic in Soil
				7267-004	TP		06/15/02	06/20/02	MCM	Americium 241/Curium in Solids
				7267-004	U		06/11/02	06/20/02	MCM	Uranium, Isotopic in Soil
Spike (R204133-01)			R204133-05	7267-005	H		06/08/02	06/20/02	MCM	Tritium in Soil
200 West		SOLID	04/23/02							
	B02-050		04/30/02							

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
C	B02-050	Carbon 14 in Soil	C14_COX_LSC	1			1	1	1		4
GAM	B02-050	Gamma Scan	GAMMA_GS	1			1	1	1		4
H	B02-050	Tritium in Soil	906.0_H3_LSC	1			1	1	1	1	5
NI_L	B02-050	Nickel 63 in Soil	NI63_LSC	1			1	1	1		4
NP	B02-050	Neptunium in Soil	NP237_LLE_PLATE_AEA	1			1	1	1		4
PU	B02-050	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	1			1	1	1		4
SR	B02-050	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	1			1	1	1		4
TC	B02-050	Technetium 99 in Soil	TC99_TR_SEP_LSC	1			1	1	1		4
TH	B02-050	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA	1			1	1	1		4
TP	B02-050	Americium 241/Curium in Solids	AMCMISO_IE_PLATE_AEA	1			1	1	1		4
U	B02-050	Uranium, Isotopic in Soil	UISO_PLATE_AEA	1			1	1	1		4
TOTALS				11			11	11	11	1	45

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 06/21/02

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1760

R204133-03 Method Blank

METHOD BLANK

SDG 7267 Client/Case no Hanford SDG H1760
Contact Melissa C. Mannion Contract No. 630

Lab sample id R204133-03 Client sample id Method Blank
Dept sample id 7267-003 Material/Matrix SOLID
SAF No B02-050

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0	0.16	0.26	400	U	H
Carbon 14	14762-75-5	0.210	2.6	4.3	50	U	C
Nickel 63	13981-37-8	0.510	1.0	1.7	30	U	NI_L
Total Strontium	SR-RAD	-0.009	0.16	0.34	1.0	U	SR
Technetium 99	14133-76-7	-0.048	0.18	0.61	15	U	TC
Thorium 228	14274-82-9	-0.025	0.049	0.19		U	TH
Thorium 230	14269-63-7	0.099	0.099	0.19	1.0	U	TH
Thorium 232	TH-232	0	0.049	0.19	1.0	U	TH
Uranium 233/234	U-233/234	0.058	0.077	0.15	1.0	U	U
Uranium 235	15117-96-1	0	0.047	0.18	1.0	U	U
Uranium 238	U-238	0	0.038	0.15	1.0	U	U
Neptunium 237	13994-20-2	-0.005	0.022	0.052	1.0	U	NP
Plutonium 238	13981-16-3	0.072	0.072	0.27	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.072	0.27	1.0	U	PU
Curium 243/244	CM-243/244	-0.027	0.053	0.20	1.0	U	TP
Americium 241	14596-10-2	0	0.053	0.20	1.0	U	TP
Potassium 40	13966-00-2	U		0.33		U	GAM
Cobalt 60	10198-40-0	U		0.012	0.050	U	GAM
Niobium 94	14681-63-1	U		0.011		U	GAM
Antimony 125	14234-35-6	U		0.027		U	GAM
Cesium 134	13967-70-9	U		0.014		U	GAM
Cesium 137	10045-97-3	U		0.012	0.10	U	GAM
Radium 226	13982-63-3	U		0.024	0.10	U	GAM
Radium 228	15262-20-1	U		0.055	0.20	U	GAM
Europium 152	14683-23-9	U		0.028	0.10	U	GAM
Europium 154	15585-10-1	U		0.036	0.10	U	GAM
Europium 155	14391-16-3	U		0.023	0.10	U	GAM
Thorium 228	14274-82-9	U		0.015		U	GAM
Thorium 232	TH-232	U		0.055		U	GAM

216-Z-11 Ditch Borehole Samples

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 06/21/02

R204133-03 Method Blank

BLANK, cont.

SDG	7267	Client/Case no	Hanford SDG_H1760
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R204133-03	Client sample id	Method Blank
Dept sample id	7267-003	Material/Matrix	SOLID
		SAF No	B02-050

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 235	15117-96-1	U		0.041		U	GAM
Uranium 238	U-238	U		1.3		U	GAM
Americium 241	14596-10-2	U		0.012		U	GAM

216-Z-11 Ditch Borehole Samples

QC-BLANK 41865

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/21/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1760

R204133-02 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7267 Client/Case no Hanford SDG H1760
Contact Melissa C. Mannion Case no No. 630

Lab sample id R204133-02 Client sample id Lab Control Sample
Dept sample id 7267-002 Material/Matrix SOLID
SAF No B02-050

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	11.0	0.39	0.27	400	J	H	11.4	0.46	96	83-117	80-120
Carbon 14	8400	84	11	50		C	9700	390	87	86-114	80-120
Nickel 63	222	4.3	1.7	30		NI_L	230	9.2	97	84-116	80-120
Total Strontium	22.3	0.86	0.26	1.0		SR	21.5	0.86	104	82-118	80-120
Technetium 99	111	2.3	0.55	15		TC	109	4.4	102	83-117	80-120
Thorium 230	44.0	4.8	0.49	1.0		TH	40.8	1.6	108	80-120	80-120
Uranium 233/234	17.5	1.6	0.78	1.0		U	18.6	0.74	94	84-116	80-120
Uranium 235	14.1	1.4	0.18	1.0		U	15.1	0.60	93	83-117	80-120
Uranium 238	19.7	1.7	0.75	1.0		U	20.2	0.81	98	84-116	80-120
Neptunium 237	21.1	0.94	0.051	1.0		NP	19.9	0.80	106	88-112	80-120
Plutonium 238	20.4	2.7	0.34	1.0		PU	24.6	0.98	83	81-119	80-120
Plutonium 239/240	24.2	3.1	0.34	1.0		PU	26.4	1.1	92	80-120	80-120
Curium 243/244	18.1	1.6	0.21	1.0		TP	19.2	0.77	94	84-116	80-120
Americium 241	18.9	1.6	0.21	1.0		TP	19.1	0.76	99	84-116	80-120
Cobalt 60	0.259	0.023	0.017	0.050		GAM	0.239	0.010	108	71-129	80-120
Cesium 137	0.343	0.021	0.016	0.10		GAM	0.294	0.012	117	71-129	80-120

216-Z-11 Ditch Borehole Samples

QC-LCS 41864
Note: LSC sample was spiked with Cm-244 only.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 06/21/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1760

R204133-04 B14DJ8

DUPLICATE

SDG 7267 Client/Case no Hanford SDG H1760

Contact Melissa C. Mannion Case no No. 630

DUPLICATE		ORIGINAL			
Lab sample id	R204133-04	Lab sample id	R204133-01	Client sample id	B14DJ8
Dept sample id	7267-004	Dept sample id	7267-001	Location/Matrix	200 West SOLID
		Received	04/30/02	Collected/Weight	04/23/02 12:40 1161 g
% solids	92.4	% solids	92.4	Custody/SAF No	B02-050-01 B02-050

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Tritium	0.029	0.10	0.17	400	U	H	-0.027	0.10	0.17	U	-	
Carbon 14	0	2.3	3.9	50	U	C	-0.751	2.6	4.4	U	-	
Nickel 63	0.780	1.1	1.9	30	U	NI_L	-0.062	1.1	1.8	U	-	
Total Strontium	-0.058	0.14	0.30	1.0	U	SR	-0.073	0.14	0.32	U	-	
Technetium 99	0.061	0.18	0.57	15	U	TC	-0.040	0.16	0.57	U	-	
Thorium 228	0.908	0.28	0.17			TH	0.664	0.28	0.18		31	76
Thorium 230	0.567	0.23	0.22	1.0	J	TH	0.503	0.23	0.17	J	12	92
Thorium 232	0.544	0.23	0.17	1.0	J	TH	0.708	0.28	0.17	J	26	87
Uranium 233/234	0.415	0.19	0.14	1.0	J	U	0.362	0.15	0.15	J	14	94
Uranium 235	0.068	0.091	0.17	1.0	U	U	0.069	0.092	0.18	U	-	
Uranium 238	0.358	0.15	0.14	1.0	J	U	0.438	0.19	0.15	J	20	92
Neptunium 237	-0.005	0.021	0.050	1.0	U	NP	-0.010	0.031	0.069	U	-	
Plutonium 238	0	0.094	0.36	1.0	U	PU	0.077	0.078	0.30	U	-	
Plutonium 239/240	1.08	0.48	0.36	1.0		PU	1.50	0.48	0.30		33	80
Curium 243/244	0	0.056	0.11	1.0	U	TP	0.066	0.088	0.17	U	-	
Americium 241	0.140	0.11	0.11	1.0	J	TP	0.308	0.18	0.21	J	75	142
Potassium 40	13.4	0.54	0.24			GAM	13.4	0.57	0.24		0	33
Cobalt 60	U		0.026	0.050	U	GAM	U		0.024	U	-	
Niobium 94	U		0.021		U	GAM	U		0.022	U	-	
Antimony 125	U		0.048		U	GAM	U		0.050	U	-	
Cesium 134	U		0.032		U	GAM	U		0.033	U	-	
Cesium 137	0.122	0.026	0.029	0.10		GAM	0.124	0.029	0.032		2	57
Radium 226	0.516	0.046	0.044	0.10		GAM	0.530	0.049	0.047		3	37
Radium 228	0.828	0.11	0.11	0.20		GAM	0.807	0.11	0.11		3	43
Europium 152	U		0.058	0.10	U	GAM	U		0.060	U	-	
Europium 154	U		0.080	0.10	U	GAM	U		0.085	U	-	
Europium 155	U		0.079	0.10	U	GAM	U		0.083	U	-	
Thorium 228	0.705	0.030	0.028			GAM	0.697	0.031	0.030		1	33

216-Z-11 Ditch Borehole Samples

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 06/21/02

R204133-04 B14DJ8

DUPLICATE, cont.

SDG	7267			Client/Case no	Hanford SDG H1760
Contact	Melissa C. Mannion			Case no	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R204133-04	Lab sample id	R204133-01	Client sample id	B14DJ8
Dept sample id	7267-004	Dept sample id	7267-001	Location/Matrix	200 West SOLID
		Received	04/30/02	Collected/Weight	04/23/02 12:40 1161 g
% solids	92.4	% solids	92.4	Custody/SAF No	B02-050-01 B02-050

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Thorium 232	0.828	0.11	0.11			GAM	0.807	0.11	0.11		3	43
Uranium 235	U		0.11		U	GAM	U		0.091	U	-	
Uranium 238	U		3.0		U	GAM	U		3.2	U	-	
Americium 241	U		0.18		U	GAM	U		0.19	U	-	

216-Z-11 Ditch Borehole Samples

QC-DUP#1 41866

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 06/21/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1760

R204133-05 B14DJ8

MATRIX SPIKE

SDG 7267 Client/Case no Hanford SDG H1760

Contact Melissa C. Mannion Case no No. 630

MATRIX SPIKE	ORIGINAL	
Lab sample id R204133-05	Lab sample id R204133-01	Client sample id B14DJ8
Dept sample id 7267-005	Dept sample id 7267-001	Location/Matrix 200 West SOLID
	Received 04/30/02	Collected/Weight 04/23/02 12:40 1161 g
	% solids 92.4	Custody/SAF No B02-050-01 B02-050

ANALYTE	SPIKE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	ORIGINAL pCi/g	2σ ERR (COUNT)	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	43.2	0.57	0.17	400	JX	H	46.7	1.9	-0.027	0.10	93	85-115	60-140

216-Z-11 Ditch Borehole Samples

QC-MS#1 41867

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-MS
Version 3.06
Report date 06/21/02

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1760

R204133-01 **B14DJ8**

DATA SHEET

SDG	7267	Client/Case no	Hanford		SDG_H1760
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R204133-01	Client sample id	B14DJ8		
Dept sample id	7267-001	Location/Matrix	200 West		SOLID
Received	04/30/02	Collected/Weight	04/23/02 12:40	1161 g	
% solids	92.4	Custody/SAF No	B02-050-01	B02-050	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.027	0.10	0.17	400	U	H
Carbon 14	14762-75-5	-0.751	2.6	4.4	50	U	C
Nickel 63	13981-37-8	-0.062	1.1	1.8	30	U	NI_L
Total Strontium	SR-RAD	-0.073	0.14	0.32	1.0	U	SR
Technetium 99	14133-76-7	-0.040	0.16	0.57	15	U	TC
Thorium 228	14274-82-9	0.664	0.28	0.18			TH
Thorium 230	14269-63-7	0.503	0.23	0.17	1.0	J	TH
Thorium 232	TH-232	0.708	0.28	0.17	1.0	J	TH
Uranium 233/234	U-233/234	0.362	0.15	0.15	1.0	J	U
Uranium 235	15117-96-1	0.069	0.092	0.18	1.0	U	U
Uranium 238	U-238	0.438	0.19	0.15	1.0	J	U
Neptunium 237	13994-20-2	-0.010	0.031	0.069	1.0	U	NP
Plutonium 238	13981-16-3	0.077	0.078	0.30	1.0	U	PU
Plutonium 239/240	PU-239/240	1.50	0.48	0.30	1.0		PU
Curium 243/244	CM-243/244	0.066	0.088	0.17	1.0	U	TP
Americium 241	14596-10-2	0.308	0.18	0.21	1.0	J	TP
Potassium 40	13966-00-2	13.4	0.57	0.24			GAM
Cobalt 60	10198-40-0	U		0.024	0.050	U	GAM
Niobium 94	14681-63-1	U		0.022		U	GAM
Antimony 125	14234-35-6	U		0.050		U	GAM
Cesium 134	13967-70-9	U		0.033		U	GAM
Cesium 137	10045-97-3	0.124	0.029	0.032	0.10		GAM
Radium 226	13982-63-3	0.530	0.049	0.047	0.10		GAM
Radium 228	15262-20-1	0.807	0.11	0.11	0.20		GAM
Europium 152	14683-23-9	U		0.060	0.10	U	GAM
Europium 154	15585-10-1	U		0.085	0.10	U	GAM
Europium 155	14391-16-3	U		0.083	0.10	U	GAM
Thorium 228	14274-82-9	0.697	0.031	0.030			GAM

216-Z-11 Ditch Borehole Samples

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/21/02

DATA SHEET, cont

SDG	7267	Client/Case no	Hanford	SDG H1760	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R204133-01	Client sample id	B14DJ8		
Dept sample id	7267-001	Location/Matrix	200 West	SOLID	
Received	04/30/02	Collected/Weight	04/23/02 12:40	1161 g	
% solids	92.4	Custody/SAF No	B02-050-01	B02-050	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Thorium 232	TH-232	0.807	0.11	0.11			GAM
Uranium 235	15117-96-1	U		0.091		U	GAM
Uranium 238	U-238	U		3.2		U	GAM
Americium 241	14596-10-2	U		0.19		U	GAM

216-Z-11 Ditch Borehole Samples

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/21/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1760

Test NP Matrix SOLID
SDG 7267
Contact Melissa C. Mannion

METHOD SUMMARY

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1760

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Neptunium 237
Preparation batch 7024-201					
B14DJ8	R204133-01			7267-001	U
BLK (QC ID=41865)	R204133-03			7267-003	U
LCS (QC ID=41864)	R204133-02			7267-002	ok
Duplicate (R204133-01)	R204133-04			7267-004	- U
Nominal values and limits from method				RDLs (pCi/g)	1.0
216-Z-11 Ditch Borehole Samples					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
Preparation batch 7024-201 2σ prep error 5.0 % Reference Lab Notebook 7024 pg. 201																
B14DJ8	R204133-01			0.069	0.500			62		727			57	06/18/02	06/19	SS-043
BLK (QC ID=41865)	R204133-03			0.052	0.500			60		728				06/18/02	06/19	SS-047
LCS (QC ID=41864)	R204133-02			0.051	0.500			47		727				06/18/02	06/19	SS-044
Duplicate (R204133-01) (QC ID=41866)	R204133-04			0.050	0.500			64		728			57	06/18/02	06/19	SS-048
Nominal values and limits from method				1.0	0.500			20-105		100			180			

PROCEDURES	REFERENCE	NP237_LLE_PLATE_AEA
	CP-060	Soil Preparation, rev 3
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 4
	CP-934	Neptunium from Solids and Water by Extraction Chromatography, rev 2

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.056 ± 0.018
YIELD 58 ± 15

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/21/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1760

Test PU Matrix SOLID
SDG 7267
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1760

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240
Preparation batch 7024-201							
B14DJ8	R204133-01			7267-001	U		1.50
BLK (QC ID=41865)	R204133-03			7267-003	U		U
LCS (QC ID=41864)	R204133-02			7267-002	ok		ok
Duplicate (R204133-01)	R204133-04			7267-004	-	U	ok
Nominal values and limits from method 216-Z-11 Ditch Borehole Samples				RDLs (pCi/g)	1.0		1.0

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7024-201 2σ prep error 5.0 % Reference Lab Notebook 7024 pg. 201																
B14DJ8	R204133-01			0.30	0.500			52	124				51	06/13/02	06/13	SS-042
BLK (QC ID=41865)	R204133-03			0.27	0.500			52	123					06/13/02	06/13	SS-044
LCS (QC ID=41864)	R204133-02			0.34	0.500			43	123					06/13/02	06/13	SS-043
Duplicate (R204133-01) (QC ID=41866)	R204133-04			0.36	0.500			44	108				51	06/13/02	06/13	SS-045
Nominal values and limits from method				1.0	0.500			20-105	100	100			180			

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
	CP-060	Soil Preparation, rev 3
	CP-940	Plutonium Separation and Purification, rev 3
	CP-008	Heavy Element Electroplating, rev 6

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.32 ± 0.081
YIELD 48 ± 10

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/21/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1760

Test TH Matrix SOLID
SDG 7267
Contact Melissa C. Mannion

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1760

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 230
Preparation batch 7024-201					
B14DJ8	R204133-01			7267-001	0.503 J
BLK (QC ID=41865)	R204133-03			7267-003	U
LCS (QC ID=41864)	R204133-02			7267-002	ok
Duplicate (R204133-01)	R204133-04			7267-004	ok J
Nominal values and limits from method				RDLs (pCi/g)	1.0
216-Z-11 Ditch Borehole Samples					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7024-201	2σ prep error 5.0 %			Reference Lab Notebook 7024 pg. 201												
B14DJ8	R204133-01			0.17	0.250			98		214			51	06/12/02	06/13	SS-047
BLK (QC ID=41865)	R204133-03			0.19	0.250			91		214				06/12/02	06/13	SS-048
LCS (QC ID=41864)	R204133-02			0.49	0.250			86		171				06/12/02	06/12	SS-021
Duplicate (R204133-01) (QC ID=41866)	R204133-04			0.22	0.250			94		214			51	06/12/02	06/13	SS-050
Nominal values and limits from method				1.0	0.250			20-105		150			180			

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 4
	CP-905	Thorium in Water and Dissolved Solid Sample Using TRU and AG 1x8 Resin, rev 1
	CP-008	Heavy Element Electroplating, rev 6

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	0.27	±	0.30
	YIELD	92	±	10

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/21/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1760

Test TP Matrix SOLID
SDG 7267
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241/CURIUM IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1760

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Curium 243/244		Americium 241	
Preparation batch 7024-201								
B14DJ8	R204133-01			7267-001	U		0.308	J
BLK (QC ID=41865)	R204133-03			7267-003	U		U	
LCS (QC ID=41864)	R204133-02			7267-002	ok		ok	
Duplicate (R204133-01)	R204133-04			7267-004	-	U	ok	J
Nominal values and limits from method 216-Z-11 Ditch Borehole Samples				RDLs (pCi/g)	1.0		1.0	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7024-201 2σ prep error 5.0 % Reference Lab Notebook 7024 pg. 201																
B14DJ8	R204133-01			0.21	0.500			64		168			53	06/15/02	06/15	SS-033
BLK (QC ID=41865)	R204133-03			0.20	0.500			55		169				06/15/02	06/15	SS-042
LCS (QC ID=41864)	R204133-02			0.21	0.500			72		169				06/15/02	06/15	SS-041
Duplicate (R204133-01) (QC ID=41866)	R204133-04			0.11	0.500			87		193			53	06/15/02	06/15	SS-043
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	CP-002	Q.C. Preparation, rev 3
	CP-003	Tracing, rev 3
	CP-940	Plutonium Separation and Purification, rev 3
	CP-961	Am-Cu Purification, Large Aliquot by Oxalate Precipitation, rev 2
	CP-008	Heavy Element Electroplating, rev 6

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.18 ± 0.097
YIELD 70 ± 27

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/21/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1760

Test U Matrix SOLID
SDG 7267
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1760

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1÷3	2σ	2÷3	2σ
Preparation batch 7024-201											
B14DJ8	R204133-01			7267-001	0.362 J	U	0.438 J	83	50	16	22
BLK (QC ID=41865)	R204133-03			7267-003	U	U	U				
LCS (QC ID=41864)	R204133-02			7267-002	ok	ok	ok				
Duplicate (R204133-01)	R204133-04			7267-004	ok J	- U	ok J	116	72	19	27
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0	100		4	
216-Z-11 Ditch Borehole Samples							Averages	99		17	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7024-201	2σ prep error 5.0 %	Reference Lab Notebook 7024 pg. 201														
B14DJ8	R204133-01			0.18	0.500			97		129			49	06/10/02	06/11	SS-008
BLK (QC ID=41865)	R204133-03			0.18	0.500			93		129				06/10/02	06/11	SS-010
LCS (QC ID=41864)	R204133-02			0.78	0.500			101		129				06/10/02	06/11	SS-009
Duplicate (R204133-01) (QC ID=41866)	R204133-04			0.17	0.500			102		129			49	06/10/02	06/11	SS-011
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	
	UISO_PLATE_AEA	
	CP-911	Uranium in Water and Dissolved Sample by Extraction Chromatography, rev 3
	CP-008	Heavy Element Electroplating, rev 6

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.33 ± 0.60
YIELD 98 ± 8

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/21/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1760

Test SR Matrix SOLID
SDG 7267
Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1760

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium	
Preparation batch 7024-201						
B14DJ8	R204133-01			7267-001	U	
BLK (QC ID=41865)	R204133-03			7267-003	U	
LCS (QC ID=41864)	R204133-02			7267-002	ok	
Duplicate (R204133-01)	R204133-04			7267-004	-	U
Nominal values and limits from method 216-Z-11 Ditch Borehole Samples				RDLs (pCi/g)	1.0	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7024-201 2σ prep error 10.0 % Reference Lab Notebook 7024 pg. 201																
B14DJ8	R204133-01			0.32	1.00			96		100			50	06/12/02	06/12	GRB-217
BLK (QC ID=41865)	R204133-03			0.34	1.00			89		100				06/12/02	06/12	GRB-219
LCS (QC ID=41864)	R204133-02			0.26	1.00			93		102				06/12/02	06/12	GRB-221
Duplicate (R204133-01) (QC ID=41866)	R204133-04			0.30	1.00			93		100			50	06/12/02	06/12	GRB-220
Nominal values and limits from method				1.0	1.00			30-105		100			180			

PROCEDURES REFERENCE SRTOT_SEP_PRECIP_GPC
CP-502 Strontium in Solids, rev 4
CP-519 Strontium Planchet Demounting and Preparation for 90Y Decontamination, rev 3

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.30 ± 0.068
YIELD 93 ± 6

Lab id TMANC
Protocol Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1760

Test TC Matrix SOLID
SDG 7267
Contact Melissa C. Mannion

METHOD SUMMARY

TECHNETIUM 99 IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1760

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 7024-201						
B14DJ8	R204133-01			7267-001	U	
BLK (QC ID=41865)	R204133-03			7267-003	U	
LCS (QC ID=41864)	R204133-02			7267-002	ok	
Duplicate (R204133-01)	R204133-04			7267-004	-	U
Nominal values and limits from method				RDLs (pCi/g)	15	
216-Z-11 Ditch Borehole Samples						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7024-201 2σ prep error 10.0 % Reference Lab Notebook 7024 pg. 201																
B14DJ8	R204133-01			0.57	1.02			91		50			58	06/15/02	06/20	GRB-217
BLK (QC ID=41865)	R204133-03			0.61	1.00			87		50				06/15/02	06/20	GRB-219
LCS (QC ID=41864)	R204133-02			0.55	1.00			93		50				06/15/02	06/20	GRB-218
Duplicate (R204133-01) (QC ID=41866)	R204133-04			0.57	1.02			85		50			57	06/15/02	06/19	GRB-220
Nominal values and limits from method				15	1.00			20-105		50			180			

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
	CP-060	Soil Preparation, rev 3
	CP-021	Preparation of Tc-99m Tracer, rev 1
	CP-002	Q.C. Preparation, rev 3
	CP-003	Tracing, rev 3
	CP-542	Technetium-99 Purification (Soil) by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 6

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.58 ± 0.050
YIELD 89 ± 7

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1760

Test GAM Matrix SOLID
SDG 7267
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1760

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 7024-201						
B14DJ8	R204133-01			7267-001	U	0.124
BLK (QC ID=41865)	R204133-03			7267-003	U	U
LCS (QC ID=41864)	R204133-02			7267-002	ok	ok
Duplicate (R204133-01)	R204133-04			7267-004	- U	ok
Nominal values and limits from method 216-Z-11 Ditch Borehole Samples					RDLs (pCi/g) 0.050	0.10

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7024-201 2σ prep error 15.0 % Reference Lab Notebook 7024 pg. 201																
B14DJ8	R204133-01			0.22	807					216			49	06/07/02	06/11	MB,05,00
BLK (QC ID=41865)	R204133-03			0.090	807					216				06/07/02	06/11	MB,07,00
LCS (QC ID=41864)	R204133-02			0.017	807					241				06/07/02	06/10	MB,07,00
Duplicate (R204133-01) (QC ID=41866)	R204133-04			0.21	807					241			48	06/07/02	06/10	MB,05,00
Nominal values and limits from method				0.050	807					100			180			

PROCEDURES	REFERENCE	GAMMA_GS
	CP-060	Soil Preparation, rev 3
	CP-100	Ge(Li) Preparation for Commercial Samples, rev 3

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.13 ± 0.20
YIELD ____ ± ____

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SAMPLE DELIVERY GROUP H1760

Test C Matrix SOLID
SDG 7267
Contact Melissa C. Mannion

METHOD SUMMARY

CARBON 14 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1760

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14
Preparation batch 7024-201					
B14DJ8	R204133-01			7267-001	U
BLK (QC ID=41865)	R204133-03			7267-003	U
LCS (QC ID=41864)	R204133-02			7267-002	ok
Duplicate (R204133-01)	R204133-04			7267-004	- U
Nominal values and limits from method				RDLs (pCi/g)	50
216-Z-11 Ditch Borehole Samples					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7024-201	2σ prep error 10.0 %			Reference Lab Notebook 7024 pg. 201												
B14DJ8	R204133-01			4.4	0.233			100	100				38	05/30/02	05/31	LSC-006
BLK (QC ID=41865)	R204133-03			4.3	0.233			100	100					05/30/02	05/31	LSC-006
LCS (QC ID=41864)	R204133-02			11	0.233			100	12					05/30/02	05/31	LSC-006
Duplicate (R204133-01) (QC ID=41866)	R204133-04			3.9	0.248			100	100				38	05/30/02	05/31	LSC-006
Nominal values and limits from method				50	0.233					50			180			

PROCEDURES	REFERENCE	C14_COX_LSC
	CP-060	Soil Preparation, rev 3
	CP-251	Tritium/Carbon-14 Oxidation, rev 3

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 5.9 ± 6.8
YIELD 100 ± 0

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1760

Test H___ Matrix SOLID
SDG 7267
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1760

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Tritium	
Preparation batch 7024-201						
B14DJ8	R204133-01			7267-001	U	
BLK (QC ID= 41865)	R204133-03			7267-003	U	
LCS (QC ID= 41864)	R204133-02			7267-002	ok	J
Duplicate (R204133-01)	R204133-04			7267-004	-	U
Spike (R204133-01)	R204133-05			7267-005	ok	JX
Nominal values and limits from method				RDLs (pCi/g)	400	
216-Z-11 Ditch Borehole Samples						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
Preparation batch 7024-201 2σ prep error 10.0 % Reference Lab Notebook 7024 pg. 201																
B14DJ8	R204133-01			0.17	20.9			50		120			46	06/07/02	06/08	LSC-005
BLK (QC ID= 41865)	R204133-03			0.26	20.0			33		120				06/07/02	06/08	LSC-005
LCS (QC ID= 41864)	R204133-02			0.27	20.0			33		120				06/07/02	06/08	LSC-005
Duplicate (R204133-01) (QC ID= 41866)	R204133-04			0.17	20.5			49		120			46	06/07/02	06/08	LSC-005
Spike (R204133-01) (QC ID= 41867)	R204133-05			0.17	20.7			51		120			46	06/07/02	06/08	LSC-005
Nominal values and limits from method				400	20.0					25			180			

PROCEDURES	REFERENCE	
	906.0_H3_LSC	
	CP-060	Soil Preparation, rev 3
	CP-216	Tritium in Solid Samples by Azeotropic Distillation, rev 4

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.21 ± 0.10
YIELD 43 ± 19

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SAMPLE DELIVERY GROUP H1760

Test NI_L Matrix SOLID
SDG 7267
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1760

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63
Preparation batch 7024-201					
B14DJ8	R204133-01			7267-001	U
BLK (QC ID=41865)	R204133-03			7267-003	U
LCS (QC ID=41864)	R204133-02			7267-002	ok
Duplicate (R204133-01)	R204133-04			7267-004	- U
Nominal values and limits from method				RDLs (pCi/g)	30
216-Z-11 Ditch Borehole Samples					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7024-201	2σ prep error 10.0 %			Reference Lab Notebook 7024 pg. 201												
B14DJ8	R204133-01			1.8	0.500			91		100			50	06/11/02	06/12	LSC-005
BLK (QC ID=41865)	R204133-03			1.7	0.500			94		100				06/11/02	06/12	LSC-005
LCS (QC ID=41864)	R204133-02			1.7	0.500			95		100				06/11/02	06/12	LSC-005
Duplicate (R204133-01) (QC ID=41866)	R204133-04			1.9	0.500			88		100			50	06/11/02	06/12	LSC-005
Nominal values and limits from method				30	0.500			30-105		50			180			

PROCEDURES	REFERENCE	NI63_LSC
	CP-060	Soil Preparation, rev 3
	CP-431	Nickel-63 Purification, rev 4

AVERAGES ± 2 SD				
FOR 4 SAMPLES	MDA	1.8	±	0.19
	YIELD	92	±	6

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SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

* LAB SAMPLE ID is the lab's primary identification for a sample.

* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.

* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.

* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

  QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

* The preparation batches are shown in the same order as the Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are included.

* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.

* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X Some data has been manually entered or modified. Transcription errors are possible.

  P One or more results are 'preliminary'. The data is not ready for final reporting.

  2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

  Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

  The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

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DATA SHEET

* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.

* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.

* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

  An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

  If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

  For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

  If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

  This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

  1. A fixed percentage specified in the protocol.

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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

  Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

  An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits

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MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

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METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

  There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

  The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

  The J and X flags are as on the data sheet.

* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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Client Hanford
Contract No. 630
Case no SDG_H1760

METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Prepareation factors are underlined if greater than the nominal value specified for the method.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/21/02

SDG 7267
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG_H1760

METHOD SUMMARY

* Count times are underlined if less than the nominal value specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.

* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.

* Days Held are underlined if greater than the holding time specified in the protocol.

* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/21/02

SDG 7267
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H1760

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/21/02

1 OF 1

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B02-050-01	Page ~~1 of 2~~
Collector: R. Fahlberg/R. Nielson	Company Contact: Duane Jacques	Telephone No.: 372-9651	Project Coordinator: TRENT, SJ	Price Code: 8N
Project Designation: 216-Z-11 Ditch Borehole Samples	Sampling Location: 200 West H1760 (7267)		SAF No.: B02-050	Air Quality ☐
Ice Chest No.: ERC-96-081	Field Logbook No.: EL-1517-	COA: B20CW5674C	Method of Shipment: Federal Express	Data Turnaround: 45 Days
Shipped To: TMA/RECRA	Offsite Property No.: A020211		Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive potential

TIE TO B14DL7

Special Handling and/or Storage

NONE

Preservation	Cool 4°C	Cool 4°C	None	None						
Type of Container	aG	aG	P	aG						
No. of Container(s)	1	1	1	1						
Volume	250mL	120mL	1000mL	120mL						
	RJN 4-16-02		RJN 4-16-02	RJN 4-16-02						
SAMPLE ANALYSIS	See item (1) in Special 5 Instructions.	TPH-Diesel Range - WTPH-D; TPH-Gasoline Range - WTPH-G	See item (2) in Special 6 Instructions.	See item (3) in Special 7 Instructions.						

Sample No.	Matrix *	Sample Date	Sample Time										
B14DJ8	SOIL	4-23-02	1240	X	X	X	X						

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Fahlberg R Fahlberg	4-22-02 1615	R Trent 1A	4-23-02 1615
Ref 1A 3728	4-24-02 0800	R Thorne	4-24-02 0800
R Thorne ERC	4-29-02 0800	FED EX	4-29-02
FED EXPRESS	4-30-02 1011	SCA-2 C. Maestas	4-30-02 1011

SPECIAL INSTRUCTIONS

See COC comments on SAF

RJN 4-16-02

~~(1) Semi-VOA - 8270A (PCB), Semi-VOA - 8270A (Add-On) (1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate)~~ Antimony-125

(2) Gamma Spec - Complete (Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Niobium-94, Radium-226, Radium-228); Isotopic Thorium (Thorium-232); Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 -- Total Sr; Technetium-99; Tritium - H3; Isotopic Uranium (3) Isotopic Plutonium; Americium-241/Curium-244 (Americium-241); Americium-241/Curium-244 (Add-on) (Curium-243)

4-24-02 RT

QA

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/29/02

Matrix *: S=Soil; SE=Sediment; SO=Solid; SL=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; WI=Wipe; L=Liquid; V=Vegetation; X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (03/01/2002)

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Inc. Date/Time received 4-30-02 10:00

CoC No. B02-050-01

Container I.D. No. ERC96-081 Requested TAT (Days) 45 P.O. Received Yes [ ] No [ ]

INSPECTION

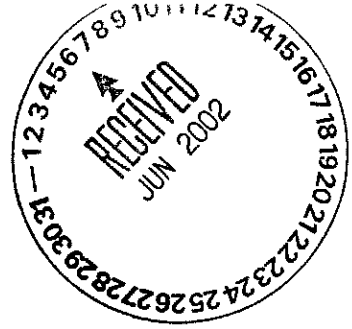
1. Custody seals on shipping container intact? Yes [ ] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [ ] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [ ] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [ ] No [ ] N/A [ ]
5. Cooler Temperature: _____ Packing material is: Wet [ ] Dry [ ]
6. Number of samples in shipping container: 1
7. Number of containers per sample: 2x ETCH (Or see CoC _____)
8. Paperwork agrees with samples? Yes [ ] No [ ]
9. Samples have: Tape [ ] Hazard labels [ ] Red labels [ ] Appropriate sample labels [ ]
10. Samples are: In good condition [ ] Leaking [ ] Broken Container [ ] Missing [ ]
11. Describe any anomalies: _____

13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by E. Maestas Date: 4-30-02 Time: 10:00

Customer Sample No.	cpm	mr/hr	Customer Sample No.	Cpm	mr/hr

Ion Chamber Ser. No. _____ Calibration date _____

Survey Meter Ser No. _____ Calibration date _____



Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-050 H1760

DATE RECEIVED: 04/30/02 LVL LOT # :0204L529

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B14DJ8	001	S	02LVG106	04/23/02	N/A	05/04/02
B14DJ8	001 MS	S	02LVG106	04/23/02	N/A	05/04/02
B14DJ8	001 MSD	S	02LVG106	04/23/02	N/A	05/04/02
LAB QC:						
VBLKVB	MB1	S	02LVG106	N/A	N/A	05/04/02
VBLKVB	MB1 BS	S	02LVG106	N/A	N/A	05/04/02

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD B02-050
LVL #: 0204L529
SDG/SAF #: H1760/B02-050

W.O. #: 11343-606-001-9999-00
Date Received: 04-30-2002

GC/MS VOLATILE

One (1) soil sample was collected on 04-23-2002.

The sample and its associated QC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8260B for client specified volatile target compounds on 05-04-2002.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of cooler temperature, which has been recorded on the chain of custody.

2. The required analysis holding time was met.

3. A non-target compound was detected in the method blank.

4. All surrogate recoveries were within EPA QC limits.

5. All matrix spike recoveries were within EPA QC limits.

6. All blank spike recoveries were within EPA QC limits.

7. Internal standard area and retention time criteria were met.

8. A spectral search was performed for the compounds Tetrahydrofuran; however, this compound was not detected in the sample.

9. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

by _____ 05-14-02

J. Michael Taylor
President
Lionville Laboratory Incorporated

Date

som\group\data\voa\tnu-hanford\0204-529.doc

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

GLOSSARY OF VOA DATA

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

D = Identifies all compounds identified in an analysis at a secondary dilution factor.

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).

Y = Additional qualifiers used as required are explained in the case narrative.

VLI
VONVILLE LABORATORY INC

GLOSSARY OF VOA DATA

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quantitation modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quantitation modifications:

MP - Missed Peak: manually added peak not found by automatic quantitation program.

PA - Peak Assignment: quantitation report was changed to reflect correct peak assignment.

RI - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.

SP - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.

CB - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.

PI - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

Lionville Laboratory, Inc.

Volatiles by GC/MS, Appendix IX List — Report Date: 05/13/02 11:00

RFW Batch Number: **0204L529** — Client: **TNUHANFORD B02-050 H1760** Work Order: 11343606001 Page: 1a

	Cust ID:	B14DJ8	B14DJ8	B14DJ8	VBLKVB	VBLKVB BS
Sample Information	RFW#:	001	001 MS	001 MSD	02LVG106-MB1	02LVG106-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	0.943	1.06	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Toluene-d8	102 %	103 %	99 %	97 %	97 %
	Bromofluorobenzene	100 %	101 %	99 %	97 %	99 %
	1,2-Dichloroethane-d4	97 %	96 %	98 %	92 %	100 %
Chloromethane		11 U	10 U	11 U	10 U	10 U
Bromomethane		11 U	10 U	11 U	10 U	10 U
Vinyl Chloride		6 U	5 U	6 U	5 U	5 U
Chloroethane		11 U	10 U	11 U	10 U	10 U
Methylene Chloride		8	10	11	5 U	1 J
Acetone		6 J	9 J	8 J	10 U	10 U
Carbon Disulfide		6 U	5 U	6 U	5 U	5 U
1,1-Dichloroethene		6 U	85 %	83 %	5 U	83 %
1,1-Dichloroethane		6 U	5 U	6 U	5 U	5 U
1,2-Dichloroethene (total)		6 U	5 U	6 U	5 U	5 U
Chloroform		6 U	5 U	6 U	5 U	5 U
1,2-Dichloroethane		6 U	5 U	6 U	5 U	5 U
2-Butanone		11 U	10 U	11 U	10 U	10 U
1,1,1-Trichloroethane		6 U	5 U	6 U	5 U	5 U
Carbon Tetrachloride		3 U	3 U	3 U	3 U	3 U
Bromodichloromethane		6 U	5 U	6 U	5 U	5 U
1,2-Dichloropropane		6 U	5 U	6 U	5 U	5 U
cis-1,3-Dichloropropene		6 U	5 U	6 U	5 U	5 U
Trichloroethene		6 U	95 %	97 %	5 U	97 %
Dibromochloromethane		6 U	5 U	6 U	5 U	5 U
1,1,2-Trichloroethane		6 U	5 U	6 U	5 U	5 U
Benzene		6 U	93 %	95 %	5 U	97 %
Trans-1,3-Dichloropropene		6 U	5 U	6 U	5 U	5 U
Bromoform		6 U	5 U	6 U	5 U	5 U
4-Methyl-2-pentanone		11 U	10 U	11 U	10 U	10 U
2-Hexanone		11 U	10 U	11 U	10 U	10 U
Tetrachloroethene		6 U	5 U	6 U	5 U	5 U
1,1,2,2-Tetrachloroethane		6 U	5 U	6 U	5 U	5 U
Toluene		6 U	97 %	97 %	5 U	101 %

*= Outside of EPA CLP QC limits.

Cust ID:	B14DJ8	B14DJ8	B14DJ8	VBLKVB	VBLKVB BS
RFW#:	001	001 MS	001 MSD	02LVG106-MB1	02LVG106-MB1
Chlorobenzene	6 U	95 %	94 %	5 U	102 %
Ethylbenzene	6 U	5 U	6 U	5 U	5 U
Styrene	6 U	5 U	6 U	5 U	5 U
Xylene (total)	6 U	5 U	6 U	5 U	5 U
Trichlorofluoromethane	6 U	5 U	6 U	5 U	5 U
Cyclohexanone	55 U	50 U	55 U	50 U	50 U
1,2,4-Trimethylbenzene	6 U	5 U	6 U	5 U	5 U

*= Outside of EPA CLP QC limits.

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B14DJ8

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 0204L529-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: q050412

Level: (low/med) LOW Date Received: 04/30/02

% Moisture: not dec. 7 Date Analyzed: 05/04/02

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

VBLKVB

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 02LVG106-MB1

Sample wt/vol: 5.00 (g/mL) G Lab File ID: g050407

Level: (low/med) LOW Date Received: 05/04/02

% Moisture: not dec. 0 Date Analyzed: 05/04/02

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	19.648	20	J

FORM 1 VOA-TIC 1/87 Rev.

Lionville Laboratory Use Only
02046529

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc

Client: TNU-HANFORD B02-050
Est. Final Proj. Sampling Date:
Project #: 11343-606-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: OJ
QC: SPEC Del: STD TAT: 30 days
Date Rec'd: 4-30-02 Date Due: 5-30-02

		A	B	C	D	E	F	G	H		I	J	K	L		
Refrigerator #		1	5	5	5	5	5	5	5		5	5	5	5		
#/Type Container	Liquid															
	Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG	1AG		1AG	1PL	1AG	1AG		
Volume	Liquid															
	Solid	250	250	250	250	120	250	120	250		120	L	250	120		
Preservatives		—	—	—	—	—	—	—	—		—	—	—	—		
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb	Pest	Alcoh Glyc Ket	Hex Chrom	INORG: Metal	CN	ORD OGRO	IC Anions	TCLP Met	Hydrazine	LEACHATE	
Lionville Laboratory Use Only		0624N (0624X)	0625X	OPCB	OHBGX (OHBGN)	0608N	OGCSC	ICR6	MET①		ODRO OGRO	INORG①	ITCLP	IHYZN	RCRATCLP	

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	Pest	Alcoh Glyc Ket	Hex Chrom	Metal	CN	ORD OGRO	IC Anions	TCLP Met	Hydrazine	LEACHATE	
001	B14DJ8	✓	✓	S	4-23-02	1240	1	1	1	1	1	1	1	1		1	1	1	1		
002	B14DJ8 tclp of 001	✓	✓	L	*															✓	
					* See	Lab chron															

Special Instructions: SAF # B02-050

DATE/REVISIONS:
MET① 1. RCRA + Be, B, Cu, Mg, Mn, Mo, Ni, V, Zn
INORG① 2. ICFL, ICNO3, ICSO4, INH3N, IN3N2, ISFD
OGCSC 3. Alcohols, Glycols, + Ketones
5-1-02 4. Cancel 0624X Add 0624N
5-7-02 5. Cancel OHBGN Add OHBGX
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # See Below
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 1.5 °C

Relinquished by	Received by	Date	Time
Fed Ex	V. Hernandez	4-30-02	1005

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
790515211761

UXUTL VUY

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-050-01	Page 1 of 2

Collector: R. Fahlberg/R. Nielson	Company Contact: Duane Jacques; Telephone No.: 372-9651	Project Coordinator: TRENT, SJ	Price Code 8N; Data Turnaround 45 Days
Project Designation: 216-Z-11 Ditch Borehole Samples	Sampling Location: 200 West	SAF No.: B02-050	Air Quality ☐
Ice Chest No.: ERC-02-008	Field Logbook No.: EL-1517-; COA: B20CW5674C	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA	Offsite Property No.: A020088	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive potential
Tie to B14DL7

Special Handling and/or Storage

Cool

			Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
			Type of Container	aG	aG	aG	P	aG	aG	aG	aG	aG	aG
			No. of Container(s)	1	1	1	1	1	1	1	1	1	1
			Volume	120mL	250mL	120mL	1000mL	120mL	250mL	120mL	250mL	250mL	250mL
SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	See item (3) in Special Instructions.	Hydrazine - D1385	PCBs - 8082	Pesticides - 8081	Herbicides - 8150A	See item (4) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015 (Methanol)
Sample No.	Matrix *	Sample Date	Sample Time										
B14DJ8	SOIL	4-23-02	1240	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R.Fahlberg / R.Fahlberg	4-23-02 1615	Ref 1-A	4-23-02 1615
Ref 1A 3728	4-29-02 0800	R.Thorson	4-29-02 0800
R.Thorson	4-29-02 0800	FedEx	
FedEx	4-30-02 1005	[illegible signature]	4-30-02 1005

SPECIAL INSTRUCTIONS

See COC comments on SAF

(1) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Boron, Copper, Magnesium, Manganese, Molybdenum, Nickel, Vanadium, Zinc}; Mercury - 7470 - (CV)
(3) IC Anions - 300.0 {Fluoride, Nitrate, Sulfate}; Ammonia - 350.3; NO2/NO3 - 353.1; Sulfides - 9030
(4) VOA - 8260A (TCL); VOA - 8260A (Add-On) {Trichloromonofluoromethane}; VOA - 8260A (App IX Add-On) {Tetrahydrofuran}

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/29/02 RT

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-050-01	Page 2 of 2

Collector R. Fahlberg/R. Nielson	Company Contact Duane Jacques	Telephone No. 372-9651	Project Coordinator TRENT, SJ
Project Designation 216-Z-11 Ditch Borehole Samples	Sampling Location 200 West		SAF No. B02-050
Ice Chest No. ERC 02-008	Field Logbook No. EL-1517-	COA B20CW5674C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. AØ2ØØ88		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8N

Air Quality ☐

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive Potential TIE TO B14DL7

Special Handling and/or Storage

COOL

Preservation	Cool 4C	Cool 4C	~~None~~ RT 4.24.02	None RT 4.24.02
Type of Container	aG	aG	~~?~~	aG
No. of Container(s)	1	1		1
Volume	250mL RJN 4-16-02	120mL	1000mL RJN 4-16-02	120mL RJN 4/16/02
SAMPLE ANALYSIS	See item (4) in Special 5 Instructions.	TPH-Diesel Range - WTPH-D; TPH-Gasoline Range - WTPH-G	See item (2) in Special 6 Instructions.	See item (3) in Special 7 Instructions.

Sample No.	Matrix *	Sample Date	Sample Time				
B14DJ8	SOIL	4-23-02	1240	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Fahlberg / R Fahlberg	4-23-02 1615	RST 1-A	4-23-02 1615
Ref 1A 3728	4-29-02 0800	RT / RT Thoren	4-29-02 0800
RT / RT Thoren ERC	4-29-02 0800	FED EX	4-29-02
Fed Ex	4-30-02 1005	[illegible signature]	4-30-02 1005

SPECIAL INSTRUCTIONS

See COC comments on SAF

RJN 4-16-02

5(1) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate} Antimony-125

6~~(2) Gamma Spec - Complete~~ {Cesium-134, Cesium-137, ~~Cobalt-60, Europium-152, Europium-154, Europium-155, Niobium-94, Radium-226, Radium-228}; Isotopic Thorium {Thorium-232}; Carbon-14, Neptunium-237, Nickel-63, Strontium-89,90 - Total Sr, Technetium-99, Tritium - H3, Isotopic Uranium~~

7~~(3) Isotopic Plutonium, Americium-241/Curium-244 {Americium-241}; Americium-241/Curium-24 (Add-on) {Curium-243}~~

RT 4.24.02

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/29/02 RT

Matrix *

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project:

DATE: 4-30-02

SAF# / SOW# / Release #: B02-050

Laboratory SDG #: 0204L529

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
3.	Airbill # recorded?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
5.	Sample containers are intact?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
6.	Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
7.	All samples on coc received?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
8.	All sample label information matches coc?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
10.	Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12.	coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13.	coc faxed or emailed to client?	☐ Yes	☐ No	☐ N/A	☐ see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☐ N/A	☐ see Comment #

Cooler # / temp and Comments:

RE 2-008 1.5

Laboratory Sample Custodian: Vicki Kennedy

Laboratory Project Manager:

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-050 H1760

DATE RECEIVED: 04/30/02 LVL LOT # :0204L529

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B14DJ8	001	S	02LE0473	04/23/02	05/01/02	05/17/02
B14DJ8	001 MS	S	02LE0473	04/23/02	05/01/02	05/17/02
B14DJ8	001 MSD	S	02LE0473	04/23/02	05/01/02	05/17/02
LAB QC:						
SBLKUF	MB1	S	02LE0473	N/A	05/01/02	05/17/02
SBLKUF	MB1 BS	S	02LE0473	N/A	05/01/02	05/17/02

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD B02-050
LVL #: 0204L529
SDG/SAF #: H1760/B02-050

W.O. #: 11343-606-001-9999-00
Date Received: 04-30-2002

SEMIVOLATILE

One (1) soil sample was collected on 04-23-2002.

The sample and its associated QC samples were extracted on 05-01-2002 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 05-17-2002.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of cooler temperature, which has been recorded on the chain of custody.

2. The sample was extracted and analyzed within required holding time.

3. A non-target compound was detected in the sample.

4. One (1) of thirty (30) surrogate recoveries was outside EPA QC limits. However, EPA CLP surrogate recovery criteria were met (i.e., no more than one outlier per fraction {acid and base neutral} and no recoveries less than 10%).

5. All blank spike recoveries were within EPA QC limits.

6. Ten (10) of twenty-two (22) matrix spike recoveries were outside EPA QC limits.

7. All blank spike recoveries were within EPA QC limits.

8. Internal standard area and retention time criteria were met.

9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

by _____ 05-24-02

J. Michael Taylor
President
Lionville Laboratory Incorporated

Date

som\gorup\data\bna\tnu-hanford-0204-529.doc

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

GLOSSARY OF BNA DATA

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

D = Identifies all compounds identified in an analysis at a secondary dilution factor.

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

A = Indicates that a TIC is a suspected aldol-condensation product.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).

Y = Additional qualifiers used as required are explained in the case narrative.

GLOSSARY OF BNA DATA

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quan modifications:

MP - Missed Peak: manually added peak not found by automatic quan program.

PA - Peak Assignment: quan report was changed to reflect correct peak assignment.

RI - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.

SP - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.

CB - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.

PI - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, Special List — Report Date: 05/23/02 16:50

RFW Batch Number: **0204L529** Client: **TNUHANFORD B02-050 H1760** Work Order: 11343606001 Page: 1a

	Cust ID:	B14DJ8	B14DJ8	B14DJ8	SBLKUF	SBLKUF BS
Sample	RFW#:	001	001 MS	001 MSD	02LE0473-MB1	02LE0473-MB1
Information	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
	Nitrobenzene-d5	94 %	91 %	101 %	81 %	86 %
Surrogate	2-Fluorobiphenyl	88 %	89 %	98 %	79 %	78 %
Recovery	p-Terphenyl-d14	96 %	104 %	108 %	105 %	89 %
	Phenol-d5	101 %	99 %	112 %	83 %	87 %
	2-Fluorophenol	95 %	90 %	101 %	74 %	80 %
	2,4,6-Tribromophenol	108 %	120 %	127 * %	104 %	101 %
Phenol		330 U	97 * %	111 * %	330 U	88 %
bis(2-Chloroethyl)ether		330 U	330 U	330 U	330 U	330 U
2-Chlorophenol		330 U	97 %	110 * %	330 U	87 %
1,3-Dichlorobenzene		330 U	330 U	330 U	330 U	330 U
1,4-Dichlorobenzene		330 U	79 %	89 %	330 U	71 %
1,2-Dichlorobenzene		330 U	330 U	330 U	330 U	330 U
2-Methylphenol		330 U	330 U	330 U	330 U	330 U
2,2'-oxybis(1-Chloropropane)		330 U	330 U	330 U	330 U	330 U
3- and/or 4-Methylphenol		330 U	330 U	330 U	330 U	330 U
N-Nitroso-Di-n-propylamine		330 U	93 %	108 %	330 U	89 %
Hexachloroethane		330 U	330 U	330 U	330 U	330 U
Nitrobenzene		330 U	330 U	330 U	330 U	330 U
Isophorone		330 U	330 U	330 U	330 U	330 U
2-Nitrophenol		330 U	330 U	330 U	330 U	330 U
2,4-Dimethylphenol		330 U	330 U	330 U	330 U	330 U
bis(2-Chloroethoxy)methane		330 U	330 U	330 U	330 U	330 U
2,4-Dichlorophenol		330 U	330 U	330 U	330 U	330 U
1,2,4-Trichlorobenzene		330 U	81 %	87 %	330 U	75 %
Naphthalene		330 U	330 U	330 U	330 U	330 U
4-Chloroaniline		330 U	330 U	330 U	330 U	330 U
Hexachlorobutadiene		330 U	330 U	330 U	330 U	330 U
4-Chloro-3-methylphenol		330 U	110 * %	122 * %	330 U	102 %
2-Methylnaphthalene		330 U	330 U	330 U	330 U	330 U
Hexachlorocyclopentadiene		330 U	330 U	330 U	330 U	330 U
2,4,6-Trichlorophenol		330 U	330 U	330 U	330 U	330 U
2,4,5-Trichlorophenol		830 U	830 U	830 U	830 U	830 U

*= Outside of EPA CLP QC limits.

Cust ID:	B14DJ8	B14DJ8	B14DJ8	SBLKUF	SBLKUF BS
RFW#:	001	001 MS	001 MSD	02LE0473-MB1	02LE0473-MB1
2-Chloronaphthalene	330 U	330 U	330 U	330 U	330 U
2-Nitroaniline	830 U	830 U	830 U	830 U	830 U
Dimethylphthalate	330 U	330 U	330 U	330 U	330 U
Acenaphthylene	330 U	330 U	330 U	330 U	330 U
2,6-Dinitrotoluene	330 U	330 U	330 U	330 U	330 U
3-Nitroaniline	830 U	830 U	830 U	830 U	830 U
Acenaphthene	330 U	85 %	92 %	330 U	79 %
2,4-Dinitrophenol	830 U	830 U	830 U	830 U	830 U
4-Nitrophenol	830 U	115 * %	123 * %	830 U	111 %
Dibenzofuran	330 U	330 U	330 U	330 U	330 U
2,4-Dinitrotoluene	330 U	94 * %	99 * %	330 U	86 %
Diethylphthalate	330 U	330 U	330 U	330 U	330 U
4-Chlorophenyl-phenylether	330 U	330 U	330 U	330 U	330 U
Fluorene	330 U	330 U	330 U	330 U	330 U
4-Nitroaniline	830 U	830 U	830 U	830 U	830 U
4,6-Dinitro-2-methylphenol	830 U	830 U	830 U	830 U	830 U
N-Nitrosodiphenylamine (1)	330 U	330 U	330 U	330 U	330 U
4-Bromophenyl-phenylether	330 U	330 U	330 U	330 U	330 U
Hexachlorobenzene	330 U	330 U	330 U	330 U	330 U
Pentachlorophenol	830 U	105 %	114 * %	830 U	99 %
Phenanthrene	330 U	330 U	330 U	330 U	330 U
Anthracene	330 U	330 U	330 U	330 U	330 U
Carbazole	330 U	330 U	330 U	330 U	330 U
Di-n-Butylphthalate	330 U	330 U	330 U	330 U	330 U
Fluoranthene	330 U	330 U	330 U	330 U	330 U
Pyrene	330 U	99 %	102 %	330 U	86 %
Butylbenzylphthalate	330 U	330 U	330 U	330 U	330 U
3,3'-Dichlorobenzidine	330 U	330 U	330 U	330 U	330 U
Benzo(a)anthracene	330 U	330 U	330 U	330 U	330 U
Chrysene	330 U	330 U	330 U	330 U	330 U
bis(2-Ethylhexyl)phthalate	330 U	330 U	330 U	330 U	17 J
Di-n-Octyl phthalate	330 U	330 U	330 U	330 U	330 U
Benzo(b)fluoranthene	330 U	330 U	330 U	330 U	330 U
Benzo(k)fluoranthene	330 U	330 U	330 U	330 U	330 U
Benzo(a)pyrene	330 U	330 U	330 U	330 U	330 U
Indeno(1,2,3-cd)pyrene	330 U	330 U	330 U	330 U	330 U
Dibenzo(a,h)anthracene	330 U	330 U	330 U	330 U	330 U
Benzo(g,h,i)perylene	330 U	330 U	330 U	330 U	330 U
Tributylphosphate	330 U	330 U	330 U	330 U	330 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B14DJ8

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B02-050 H1760

Matrix: (soil/water) SOIL

Lab Sample ID: 0204L529-001

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: A051711

Level: (low/med) LOW

Date Received: 04/30/02

% Moisture: 100 decanted: (Y/N)__

Date Extracted: 05/01/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/17/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	8.323	300	JB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKUF

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B02-050 H1760

Matrix: (soil/water) SOIL

Lab Sample ID: 02LE0473-MB1

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: A051709

Level: (low/med) LOW

Date Received: 05/01/02

% Moisture: _____ decanted: (Y/N)__

Date Extracted: 05/01/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/17/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	8.323	300	J

Lionville Laboratory Use Only

02044529

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI — Lionville Laboratory Inc

10

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-HANFORD B02-050

Est. Final Proj. Sampling Date: ____

Project #: 11343-606-001-9999-00

Project Contact/Phone #: ____

Lionville Laboratory Project Manager: OJ

QC: SPEC   Del: STD   TAT: 30 days

Date Rec'd: 4-30-02   Date Due: 5-30-02

	A	B	C	D	E	F	G	H		I	J	K	L		
Refrigerator #	1	5	5	5	5	5	5	5		5	5	5	5		
#/Type Container – Liquid															
#/Type Container – Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG	1AG		1AG	1PL	1AG	1AG		
Volume – Liquid															
Volume – Solid	250	250	250	250	120	250	120	250		120	L	250	120		
Preservatives	–	–	–	–	–	–	–	–		–	–	–	–		
ANALYSES REQUESTED →	ORGANIC: VOA	BNA	Pest/PCB	Herb	Pest	Alcohols Glyc Ket	Hex Chrom	INORG: Metal	CN	DRO GRO	IC Anions	TCLP Met	Hydrazine	CCATC	
Lionville Laboratory Use Only	0624X	0625X	OPCB	OHBGN	0608N	OGCSC	ICR6	MET ①		ODRO OGRO	INORG ①	ITCLP	ZHYZN	RCRATCW	

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	Pest	Alc Glyc Ket	Hex Chrom	Metal	CN	DRO GRO	IC Anions	TCLP Met	Hydrazine	CCATC	
001	B14DJ8	✓	✓	S	4-23-02	1240	1	1	1	1	1	1	1	1		1	1	1	1		
002	B14DJ8 tclp of 001	✓	✓	L	*															✓	
					* See	Labchron															

Special Instructions: SAF # B02-050

DATE/REVISIONS:
MET① 1. RCRA + Be, B, Cu, Mg, Mn, Mo, Ni, V, Zn
INORG① 2. ICFL, ICNO3, ICSO4, INH3N, IN3N2, ISFD
OGCSC 3. Alcohols, Glycols, + Ketones
4.
5.
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ____
Airbill # See Below
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 1.5 °C

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Fed Ex	[signature]	4-30-02	1005	COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES: 790515211761

OUTER WRAP

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B02-050-01

Collector R. Fahlberg/R. Nielson	**Company Contact** Duane Jacques	**Telephone No.** 372-9651	**Project Coordinator** TRENT, SJ
Project Designation 216-Z-11 Ditch Borehole Samples	**Sampling Location** 200 West		**SAF No.** B02-050
Ice Chest No. ERC-02-008	**Field Logbook No.** EL-1517-	**COA** B20CW5674C	**Method of Shipment** Federal Express
Shipped To TMA/RECRA	**Offsite Property No.** AP20488		**Bill of Lading/Air Bill No.** See OSPC

Price Code 8N **Data Turnaround** 45 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive Potential

Tie to B14DL7

Special Handling and/or Storage

Cool

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	aG	aG	aG	P	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	120mL	250mL	120mL	1000mL	120mL	250mL	120mL	250mL	250mL	250mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	See item (3) in Special Instructions.	Hydrazine - D1385	PCBs - 8082	Pesticides - 8081	Herbicides - 8150A	See item (4) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015 (Methanol)
Sample No.	**Matrix ***	**Sample Date**	**Sample Time**							
B14DJ8	SOIL	4-23-02	1240	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg/R. Nielson	4-23-02 1615	Ref 1-A	4-23-02 1615
R. Fahlberg 3728	4-24-02 0800	R. Thorson	4-24-02 0800
R. Thorson	4-24-02 0800	FEDEX	
FEDEX	4-30-02 1005		4-30-02 1005

SPECIAL INSTRUCTIONS

See COC comments on SAF

(1) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470

(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Boron, Copper, Magnesium, Manganese, Molybdenum, Nickel, Vanadium, Zinc}; Mercury - 7470 - (CV)

(3) IC Anions - 300.0 {Fluoride, Nitrate, Sulfate}; Ammonia - 350.3; NO2/NO3 - 353.1; Sulfides - 9030

(4) VOA - 8260A (TCL); VOA - 8260A (Add-On) {Trichloromonofluoromethane}; VOA - 8260A (App IX Add-On) {Tetrahydrofuran}

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/29/02

Matrix *

S=Soil
SD=Sediment
SO=Solid
SL=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-050-01	Page 2 of 2

Collector	Company Contact / Telephone No.	Project Coordinator	Price Code / Data Turnaround
R. Fahlberg/R. Nielson	Duane Jacques 372-9651	TRENT, SJ	8N / 45 Days
Project Designation	**Sampling Location**	**SAF No.**	**Air Quality** ☐
216-Z-11 Ditch Borehole Samples	200 West	B02-050	
Ice Chest No. ERC 02-008	**Field Logbook No.** EL-1517- / **COA** B20CW5674C	**Method of Shipment** Federal Express	
Shipped To TMA/RECRA	**Offsite Property No.** A0700088	**Bill of Lading/Air Bill No.** See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive Potential
Tie to B14DL7

Special Handling and/or Storage
Cool

Preservation	Cool 4C	Cool 4C	RT 4.24.02	None RT 4.24.02					
Type of Container	aG	aG		aG					
No. of Container(s)	1	1	1	1					
Volume	250mL RJN 4-16-02	120mL	1000mL RJN 4-16-02	120mL RJN 4/16/02					
SAMPLE ANALYSIS	See item #1 in Special 5 Instructions.	TPH-Diesel Range - WTPH-D; TPH-Gasoline Range - WTPH-G	See item #3 in Special 6 Instructions.	See item #2 in Special 4 Instructions.					

Sample No.	Matrix *	Sample Date	Sample Time								
B14DJ8	SOIL	4-23-02	1240	X	X	X	X				

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
B Fahlberg R Fahlberg	4-23-02 1615	RT 1A	4-23-02 1615
RT 1A 3728	4.24.02 0800	RT CR Thorp	4.24.02 0800
RT CR Thorp ERC #28726	4.29.02 0800	FED EX	4.29.02
Fed Ex	4-30-02 1005	[signature]	4-30-02 1005

Sign/Print Names

SPECIAL INSTRUCTIONS
See COC comments on SAF
RJN 4-16-02
5(1) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) (1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate) Antimony (25
~~5(5) Gamma Spec. Complete (Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Niobium-94, Radium-226, Radium-228), Isotopic Thorium (Thorium-228), Carbon-14, Neptunium-237, Nickel-63, Strontium-89,90 -- Total Sr, Technetium-99, Tritium -H3, Isotopic Uranium~~
~~(3) Isotopic Plutonium, Americium-241/Curium-244 (Americium-241), Americium-241/Curium-244 (Add-on) (Curium-245)~~
RT 4.24.02

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/24/02 RT

Matrix *
S=Soil
SD=Sediment
SO=Solid
SL=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project:

DATE: 4.30.02

SAF# / SOW# / Release #: B02-050

Laboratory SDG #: 0204L529

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
3.	Airbill # recorded?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
5.	Sample containers are intact?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
6.	Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
7.	All samples on coc received?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
8.	All sample label information matches coc?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
10.	Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12.	coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13.	coc faxed or emailed to client?	☐ Yes	☐ No	☐ N/A	☐ see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☐ N/A	☐ see Comment #

Cooler # / temp and Comments:

1 1.5

Laboratory Sample Custodian:

Laboratory Project Manager:

13

Lionville Laboratory, Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-050 H1760

DATE RECEIVED: 04/30/02 LVL LOT # :0204L529

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B14DJ8	001	S	02LE0476	04/23/02	05/01/02	05/11/02
B14DJ8	001 MS	S	02LE0476	04/23/02	05/01/02	05/11/02
B14DJ8	001 MSD	S	02LE0476	04/23/02	05/01/02	05/11/02
LAB QC:						
PBLKNN	MB1	S	02LE0476	N/A	05/01/02	05/11/02
PBLKNN	MB1 BS	S	02LE0476	N/A	05/01/02	05/11/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B02-050
LVL #: 0204L529
SDG/SAF #: H1760/B02-050

W.O. #: 11343-606-001-9999-00
Date Received: 04-30-02

PESTICIDES

One (1) soil sample was collected on 04-23-02.

The sample and its associated QC samples were extracted on 05-01-02 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 05-11-02. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8081.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LVLI's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The sample and its associated QC samples received a sulfur cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. All surrogate recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria, with the exception of most target compounds analyzed on 05-11-02 at 20:17, 21:07 and 21:56 on the RTX-CLP2 column and with the exception of the target compound, Kepone analyzed on 05-11-02 at 21:56, on the RTX-35 column. The data reflected an increase in instrument response, so the ability to identify these compounds was not impaired. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

5/24/02

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

Date

pef\r:\group\data\pest\tnu hanford\04L-529.pcb

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 026240

Initiator: Bryce Santoro
Date: 5/21/02
Client: TNU

Batch: 0204529
Samples: all
Method: SW846/MCAWW/CLP/

Parameter: 0608N
Matrix: Soil
Prep Batch: 02LE0476

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy

__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

① CCV prior to samples and QC increased on conf. column, OK on primary column for all compounds except Heptachlor (increased on both columns). All samples clean.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action Other Description: Narrate

__ Re-log
__ Entire Batch
__ Following Samples: _____
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

4. Project Manager Instructions...signature/date: 5/21/02

__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
✓ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: 5/21/02 Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	__ Metals: Beegle
__	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
✓	X Project Mgr: Stone/Johnson/Haslett	__	__ GC/LC: Kiger
__	X Technical Mgr: Wesson/Daniels	__	__ MS: Rychlak/Layman
__	X QA (file): Alberts	__	__ Log-in: Melnic
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Beegle/Kiger	__	__ Other: _____

VLI
VERITAS LABORATORY INC.

GLOSSARY OF PESTICIDE/PCB DATA

ATA QUALIFIERS

= Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

= Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

= This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.

= Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

= Interference.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

VLI
VISTAVILLE LABORATORY INC

GLOSSARY OF PESTICIDE/PCB DATA

= This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

= This flag identifies all compounds identified in an analysis at a secondary dilution factor.

= This flag applies to a compound that has been confirmed by GC/MS.

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, Appendix IX List Report Date: 05/21/02 14:09

RFW Batch Number: 0204L529 Client: TNUHANFORD B02-050 H1760 Work Order: 11343606001 Page: 1

	Cust ID:	B14DJ8	B14DJ8	B14DJ8	PBLKNN	PBLKNN BS
Sample Information	RFW#:	001	001 MS	001 MSD	02LE0476-MB1	02LE0476-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Decachlorobiphenyl	115 %	115 %	120 %	110 %	110 %
	Tetrachloro-m-xylene	90 %	90 %	95 %	85 %	85 %
Alpha-BHC		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Beta-BHC		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Delta-BHC		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
gamma-BHC (Lindane)		1.7 U	80 %	88 %	1.7 U	64 %
Heptachlor		1.7 U	84 %	90 %	1.7 U	82 %
Aldrin		1.7 U	84 %	88 %	1.7 U	80 %
Heptachlor epoxide		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Endosulfan I		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Dieldrin		3.3 U	92 %	98 %	3.3 U	89 %
4,4'-DDE		3.3 U	3.3 U	3.3 U	3.3 U	3.3 U
Endrin		3.3 U	105 %	112 %	3.3 U	99 %
Endosulfan II		3.3 U	3.3 U	3.3 U	3.3 U	3.3 U
4,4'-DDD		3.3 U	3.3 U	3.3 U	3.3 U	3.3 U
Endosulfan sulfate		3.3 U	3.3 U	3.3 U	3.3 U	3.3 U
4,4'-DDT		3.3 U	73 %	81 %	3.3 U	51 %
Methoxychlor		17 U	17 U	17 U	17 U	17 U
Endrin aldehyde		3.3 U	3.3 U	3.3 U	3.3 U	3.3 U
Kepone		17 U	17 U	17 U	17 U	17 U
alpha-Chlordane		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
gamma-Chlordane		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Toxaphene		170 U	170 U	170 U	170 U	170 U
Isodrin		3.3 U	3.3 U	3.3 U	3.3 U	3.3 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

(U) VOH

Lionville Laboratory Use Only
0204L529

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI LIONVILLE LABORATORY INC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-HANFORD B02-050

Est. Final Proj. Sampling Date ______

Project #: 11343-606-001-9999-00

Project Contact/Phone # ______

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 4-30-02 Date Due: 5-30-02

		A	B	C	D	E	F	G	H		I	J	K	L	
Refrigerator #		1	5	5	5	5	5	5	5		5	5	5	5	
#/Type Container	Liquid														
	Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG	1AG		1AG	1PL	1AG	1AG	
Volume	Liquid														
	Solid	250	250	250	250	120	250	120	250		120	L	250	120	
Preservatives		—	—	—	—	—	—	—	—		—	—	—	—	
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb	Pest	Alcoh Glyc Ket	Herb Chlor	INORG: Metal	CN	DRO GRO	IC Anions	TCLP Met	Hydrazine	LEACHATE

MATRIX CODES: S - Soil; SE - Sediment; SO - Solid; SL - Sludge; W - Water; O - Oil; A - Air; DS - Drum Solids; DL - Drum Liquids; L - EP/TCLP Leachate; WI - Wipe; X - Other; F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624X N	0625X	OPCB	OHBGN X	O608N	OGCSC	ICR6	MET(1)		ODRO OGRO	INORG(1)	ITCLP	IHYZN	RCRATCLP
001	B14DJ8	✓	✓	S	4-23-02	1240	1	1	1	1	1	1	1	1		1	1	1	1	
002	B14DJ8 tclp of 001	✓	✓	L	*															✓

* See Labchron

Special Instructions: SAF # B02-050

DATE/REVISIONS:

MET(1) 1. RCRA + Be, B, Cu, Mg, Mn, Mo, Ni, V, Zn

INORG(1) 2. ICFL, ICNO3, ICSO4, INH3N, IN3N2, ISFD

OGCSC 3. Alcohols, Glycols, + Ketones

5-1-02 4. Cancel 0624X Add 0624N

5-7-02 5. Cancel OHBGN Add OHBGX

6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # See Below
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 1.5 °C

Relinquished by	Received by	Date	Time
Fed Ex	V. Hernandez	4-30-02	1005

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES: 790515211761

U204L JQ4

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B02-050-01	Page 1 of 2
Collector: R. Fahlberg/R. Nielson	Company Contact: Duane Jacques	Telephone No.: 372-9651	Project Coordinator: TRENT, SJ	Price Code: 8N; Air Quality ☐
Project Designation: 216-Z-11 Ditch Borehole Samples	Sampling Location: 200 West		SAF No.: B02-050	Data Turnaround: 45 Days
Ice Chest No.: ERC-02-008	Field Logbook No.: EL-1517-	COA: B20CW5674C	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA	Offsite Property No.: AP20688		Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive Potential
Tie to B14DL7

Special Handling and/or Storage
Cool

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	aG	aG	aG	P	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	120mL	250mL	120mL	1000mL	120mL	250mL	120mL	250mL	250mL	250mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	See item (3) in Special Instructions.	Hydrazine - D1385	PCBs - 8082	Pesticides - 8081	Herbicides - 8150A	See item (4) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015 (Methanol)
Sample No.	Matrix *	Sample Date	Sample Time							
B14DJ8	SOIL	4-23-02	1240	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg R. Fahlberg	4-23-02 1615	Ref 1A	4-23-02 1615
Ref 1A 3728	4-29-02 0800	R. L. Thorsen	4-29-02 0800
R. L. Thorsen	4-29-02 0800	FedEx	
FedEx	4-30-02 1005		4-30-02 1005

SPECIAL INSTRUCTIONS
See COC comments on SAF

(1) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Boron, Copper, Magnesium, Manganese, Molybdenum, Nickel, Vanadium, Zinc}; Mercury - 7470 - (CV)
(3) IC Anions - 300.0 {Fluoride, Nitrate, Sulfate}; Ammonia - 350.3; NO2/NO3 - 353.1; Sulfides - 9030
(4) VOA - 8260A (TCL); VOA - 8260A (Add-On) {Trichloromonofluoromethane}; VOA - 8260A (App IX Add-On) {Tetrahydrofuran}

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/29/02

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-050-01	Page 2 of 2

Collector R. Fahlberg/R. Nielson	Company Contact Duane Jacques	Telephone No. 372-9651	Project Coordinator TRENT, SJ
Project Designation 216-Z-11 Ditch Borehole Samples	Sampling Location 200 West		SAF No. B02-050
Ice Chest No. ERC 02-008	Field Logbook No. EL-1517-	COA B20CW5674C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. A020088		Bill of Lading/Air Bill No. See OSPC

Price Code 8N | Data Turnaround 45 Days | Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive Potential

Tie to B14DL7

Special Handling and/or Storage

Cool

Preservation	Cool 4C	Cool 4C	None RT 4.24.02	None RT 4.24.02
Type of Container	aG	aG	P	aG
No. of Container(s)	1	1	1	1
Volume	250mL	120mL	1000mL	120mL
	RJN 4-16-02		RJN 4-16-02	RJN 4/16/02
SAMPLE ANALYSIS	See item (1) in Special 5 Instructions.	TPH-Diesel Range - WTPH-D; TPH-Gasoline Range - WTPH-G	See item (2) in Special 6 Instructions.	See item (3) in Special 7 Instructions.

Sample No.	Matrix *	Sample Date	Sample Time				
B14DJ8	SOIL	4-23-02	1240	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RFahlberg R Fahlberg	4-23-02 1615	RT 1-A	4-23-02 1615
Ref 1A 3728	4/29/02 0800	RT C R Thoreen	4/29/02 0800
RT C R Thoreen ERC	4/29/02 0800	FED EX	4/29/02
Fed Ex	4-30-02 1005	V. Neumann	4-30-02 1005

SPECIAL INSTRUCTIONS

See COC comments on SAF

RJN 4-16-02

5(1) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}

Antimony-125

~~6(2) Gamma Spec - Complete {Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Niobium-94, Radium-226, Radium-228}; Isotopic Thorium {Thorium-232}; Carbon-14, Neptunium-237; Nickel-63, Strontium-89,90 -- Total Sr; Technetium-99; Tritium - H3, Isotopic Uranium~~
~~7(3) Isotopic Plutonium; Americium-241/Curium-244 {Americium-241}; Americium-241/Curium-244 (Add-on) {Curium-243}~~

RT 4.24.02

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/29/02 RT

Matrix *: S=Soil, SE=Sediment, SO=Solid, SI=Sludge, W=Water, O=Oil, A=Air, DS=Drum Solids, DL=Drum Liquids, T=Tissue, WI=Wipe, L=Liquid, V=Vegetation, X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project:

DATE: 4.30.02

SAF# / SOW# / Release #: B02-050

Laboratory SDG #: 0204L529

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
3.	Airbill # recorded?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
5.	Sample containers are intact?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
6.	Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
7.	All samples on coc received?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
8.	All sample label information matches coc?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12.	coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13.	coc faxed or emailed to client?	☐ Yes	☐ No	☐ N/A	☐ see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☐ N/A	☐ see Comment #

Cooler # / temp and Comments:

2 1.5
-008

Laboratory Sample Custodian:

Laboratory Project Manager:

10

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-050 H1760

DATE RECEIVED: 04/30/02 LVL LOT # :0204L529

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B14DJ8	001	S	02LE0476	04/23/02	05/01/02	05/12/02
B14DJ8	001 MS	S	02LE0476	04/23/02	05/01/02	05/12/02
B14DJ8	001 MSD	S	02LE0476	04/23/02	05/01/02	05/12/02
LAB QC:						
PBLKNN	MB1	S	02LE0476	N/A	05/01/02	05/12/02
PBLKNN	MB1 BS	S	02LE0476	N/A	05/01/02	05/12/02

5/23/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B02-050
LVL #: 0204L529
SDG/SAF #: H1760/B02-050

W.O. #: 11343-606-001-9999-00
Date Received: 04-30-02

PCB

One (1) soil sample was collected on 04-23-02.

The sample and its associated QC samples were extracted on 05-01-02 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 05-12-02. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8082 for Aroclors only.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LVLI's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The sample and its associated QC samples received a sulfuric acid and a sulfur cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. One (1) of five (5) surrogate recoveries was outside QC limits; however, the surrogate recovery acceptance criteria were met (i.e., no more than one outlier per sample).
6. All blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
10. Confirmation was not required because target compounds were not detected in any of the samples.
11. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/24/02
Date

pef\r:\group\data\pest\tnu hanford\04L-529.pcb

GLOSSARY OF PESTICIDE/PCB DATA

ATA QUALIFIERS

= Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

= Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

= This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.

= Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

= Interference.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

VLI
VOLATILE LABORATORY INC.

GLOSSARY OF PESTICIDE/PCB DATA

= This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

= This flag identifies all compounds identified in an analysis at a secondary dilution factor.

= This flag applies to a compound that has been confirmed by GC/MS.

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 05/16/02 10:48

RFW Batch Number: **0204L529** Client: **TNUHANFORD B02-050 H1760** Work Order: 11343606001 Page: 1

	Cust ID:	B14DJ8	B14DJ8	B14DJ8	PBLKNN	PBLKNN BS
Sample Information	RFW#:	001	001 MS	001 MSD	02LE0476-MB1	02LE0476-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylene		110 %	110 %	105 %	110 %	110 %
Decachlorobiphenyl		120 %	120 %	120 %	120 %	125 * %
Aroclor-1016		36 U	102 %	103 %	33 U	101 %
Aroclor-1221		72 U	72 U	72 U	67 U	67 U
Aroclor-1232		36 U	36 U	36 U	33 U	33 U
Aroclor-1242		36 U	36 U	36 U	33 U	33 U
Aroclor-1248		36 U	36 U	36 U	33 U	33 U
Aroclor-1254		36 U	36 U	36 U	33 U	33 U
Aroclor-1260		36 U	108 %	109 %	33 U	109 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

(U) VOH

Lionville Laboratory Use Only
0204L529

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

TNU- Client: HANFORD B02-050

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 4-30-02 Date Due: 5-30-02

		A	B	C	D	E	F	G	H		I	J	K	L		
Refrigerator #		1	5	5	5	5	5	5	5		5	5	5	5		
#/Type Container	Liquid															
	Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG	1AG		1AG	1PL	1AG	1AG		
Volume	Liquid															
	Solid	250	250	250	250	120	250	120	250		120	L	250	120		
Preservatives		—	—	—	—	—	—	—	—		—	—	—	—		
ANALYSES REQUESTED →		ORGANIC: VOA	ORGANIC: BNA	ORGANIC: ~~Pest~~ PCB	ORGANIC: Herb	Pest	ALCOH GLYC KET	Hex Chrom	INORG: ~~TCLP~~ Metal	INORG: CN	ORD OGRO	IC Anions	TCLP MET	Hydrazine	LEACHATE	
Lionville Laboratory Use Only		~~0624X~~ N	0625X	OPCB	~~OHBGN~~ X	0608N	OGCSC	ICR6	MET ①		ODRO OGRO	INORG ①	ITCLP	IHYZN	RCRATCW	

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	A	B	C	D	E	F	G	H		I	J	K	L		
S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	001	B14DJ8	✓	✓	S	4-23-02	1240	1	1	1	1	1	1	1	1		1	1	1	1		
	002	B14DJ8 tclp of 001	✓	✓	L	*															✓	
						*	See Labchron															

Special Instructions: SAF # B02-050

DATE/REVISIONS:

MET①	1. RCRA + Be, B, Cu, Mg, Mn, Mo, Ni, V, Zn
INORG①	2. ICFL, ICNO3, ICSO4, INH3N, IN3N2, ISFD
OGCSC	3. Alcohols, Glycols, + Ketones
5-1-02	4. Cancel 0624X Add 0624N
5-7-02	5. Cancel OHBGN Add OHBGX
	6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # See Below
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 1.5 °C

Relinquished by	Received by	Date	Time
Fed Ex	V. Hernandez	4-30-02	1005

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES: 790515211761

UØØ47L ØØ4

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-050-01	Page 1 of 2

Collector R. Fahlberg/R. Nielson	Company Contact Duane Jacques	Telephone No. 372-9651	Project Coordinator TRENT, SJ
Price Code 8N	Data Turnaround 45 Days		
Project Designation 216-Z-11 Ditch Borehole Samples	Sampling Location 200 West	SAF No. B02-050	Air Quality ☐
Ice Chest No. ERC-02-008	Field Logbook No. EL-1517-	COA B20CW5674C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. AØ20488	Bill of Lading/Air Bill No. See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive Potential
Tie to B14DL7

Special Handling and/or Storage

Cool

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	aG	aG	aG	P	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	120mL	250mL	120mL	1000mL	120mL	250mL	120mL	250mL	250mL	250mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	See item (3) in Special Instructions.	Hydrazine - D1385	PCBs - 8082	Pesticides - 8081	Herbicides - 8150A	See item (4) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015 (Methanol)

Sample No.	Matrix *	Sample Date	Sample Time										
B14DJ8	SOIL	4-23-02	1240	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg / R. Fahlberg	4-23-02 1615	Ref 1-A	4-23-02 1615
Ref 1A 3728	4-29-02 0800	R. Thorn	4-29-02 0800
R. Thorn ERC	4-29-02 0800	FedEx	
FedEx	4-30-02 1005	[signature]	4-30-02 1005

SPECIAL INSTRUCTIONS

See COC comments on SAF

(1) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Boron, Copper, Magnesium, Manganese, Molybdenum, Nickel, Vanadium, Zinc}; Mercury - 7470 - (CV)
(3) IC Anions - 300.0 {Fluoride, Nitrate, Sulfate}; Ammonia - 350.3; NO2/NO3 - 353.1; Sulfides - 9030
(4) VOA - 8260A (TCL); VOA - 8260A (Add-On) {Trichloromonofluoromethane}; VOA - 8260A (App IX Add-On) {Tetrahydrofuran}

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/29/02 RT

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-050-01	Page 2 of 2
Collector: R. Fahlberg/R. Nielson	Company Contact: Duane Jacques; Telephone No.: 372-9651	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 216-Z-11 Ditch Borehole Samples	Sampling Location: 200 West	SAF No.: B02-050	
Ice Chest No.: ERC 02-008	Field Logbook No.: EL-1517-; COA: B20CW5674C	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA	Offsite Property No.: A070088	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive Potential
Tie to B14DL7

Special Handling and/or Storage
Cool

Preservation	Cool 4C	Cool 4C	~~None~~ RT 4.24.02	None RT 4.24.02					
Type of Container	aG	aG		aG					
No. of Container(s)	1	1	1	1					
Volume	250mL RJN 4-16-02	120mL	1000mL RJN 4-16-02	120mL RJN 4/16/02					
SAMPLE ANALYSIS	See item (4) in Special 5 Instructions.	TPH-Diesel Range - WTPH-D; TPH-Gasoline Range - WTPH-G	See item (6) in Special 6 Instructions.	See item (7) in Special 7 Instructions.					
Sample No.	Matrix *	Sample Date	Sample Time						
B14DJ8	SOIL	4-23-02	1240	X	X	X	X		

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Fahlberg R Fahlberg	4-23-02 1615	RT	4-23-02 1615
R Fahlberg	0800 4-29-02	R J Nielson	0800 4-29-02
R J Nielson ERC	0800 4-29-02	FED EX	4-29-02
Fed Ex	4-30-02 1005	V Remund	4-30-02 1005

SPECIAL INSTRUCTIONS
See COC comments on SAF
RJN 4-16-02
5(4) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) (1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate) Antimony-125
6(5) Gamma Spec. Complete (Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Niobium-94, Radium-226, Radium-228), Isotopic Thorium (Thorium-232), Carbon-14, Neptunium-237, Nickel-63, Strontium-89,90 -- Total-Sr, Technetium-99, Tritium - HD, Isotopic Uranium
7(6) Isotopic Plutonium, Americium-241/Curium-244 (Americium-241); Americium-241/Curium-244 (Add-on) (Curium-243)
RT 4.24.02

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/29/02 RT

Matrix *: S=Soil; SE=Sediment; SO=Solid; SL=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; WI=Wipe; L=Liquid; V=Vegetation; O=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project:

DATE: 4·30·02

SAF# / SOW# / Release #: B02-050

Laboratory SDG #: 0204L529

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
3.	Airbill # recorded?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
5.	Sample containers are intact?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
6.	Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
7.	All samples on coc received?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
8.	All sample label information matches coc?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
10.	Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12.	coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13.	coc faxed or emailed to client?	☐ Yes	☐ No	☐ N/A	☐ see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☐ N/A	☐ see Comment #

Cooler # / temp and Comments:

c .008 1·5

Laboratory Sample Custodian: Vicki Kennedy

Laboratory Project Manager:

Lionville Laboratory, Inc.
GRO ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-050 H1760

DATE RECEIVED: 04/30/02 LVL LOT # :0204L529

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B14DJ8	001	S	02LVJ504	04/23/02	N/A	05/04/02
B14DJ8	001 MS	S	02LVJ504	04/23/02	N/A	05/04/02
B14DJ8	001 MSD	S	02LVJ504	04/23/02	N/A	05/04/02
LAB QC:						
TBLKED	MB1	S	02LVJ504	N/A	N/A	05/04/02
TBLKED	MB1 BS	S	02LVJ504	N/A	N/A	05/04/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD B02-050
LVL #: 0204L529
SDG/SAF#: H01760/B02-050

W.O. #: 11343-606-001-9999-00
Date Received: 04-30-02

GRO

One (1) soil sample was collected on 04-23-02.

The sample and its associated QC samples were analyzed according to Lionville Laboratory OPs based on SW-846 methods for Gasoline range organics (GRO) on 05-04-02. The analysis met the intent of method WTPH-G.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LVLI's sample acceptance policy.

2. All required holding times for extraction and analysis have been met.

3. The method blank was below the reporting limits for all target compounds.

4. All surrogate recoveries were within acceptance criteria.

5. The blank spike recovery was within acceptance criteria.

6. All matrix spike recoveries were within acceptance criteria.

7. All initial calibrations associated with this data set were within acceptance criteria.

8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

Date 5/24/02

pef\r\group\data\gro\04-529.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 9 pages.

GLOSSARY OF GASOLINE RANGE ORGANICS DATA

DATA QUALIFIERS

U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF GASOLINE RANGE ORGANICS DATA

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor.

C = This flag applies to a compound that has been confirmed by GC/MS.

R:/SHARE/GCVOLATILE/GCVOLATILEGLOS.DOC

Lionville Laboratory, Inc.

GAS RANGE ORGANICS

Report Date: 05/23/02 09:26

RFW Batch Number: **0204L529** Client: **TNUHANFORD B02-050 H1760** Work Order: 11343606001 Page: 1

	Cust ID:	B14DJ8	B14DJ8	B14DJ8	TBLKED	TBLKED BS
Sample Information	RFW#:	001	001 MS	001 MSD	02LVJ504-MB1	02LVJ504-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Fluorobenzene		82 %	82 %	72 %	93 %	95 %
Gasoline Range Organics (GRO)		36 U	89 %	84 %	30 U	95 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Lionville Laboratory Use Only: 0204L529

Client: TNU-HANFORD B02-050

Est. Final Proj. Sampling Date

Project #: 11343-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 4-30-02 Date Due: 5-30-02

	A	B	C	D	E	F	G	H		I	J	K	L
Refrigerator #	1	5	5	5	5	5	5	5		5	5	5	5
#/Type Container – Liquid													
#/Type Container – Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG	1AG		1AG	1PL	1AG	1AG
Volume – Liquid													
Volume – Solid	250	250	250	250	120	250	120	250		120	L	250	120
Preservatives	—	—	—	—	—	—	—	—		—	—	—	—
ANALYSES REQUESTED	VOA (Organic)	BNA (Organic)	Pest/PCB (Organic)	Herb (Organic)	EtT	Alcoh Glyc Ket	Hex Chrom	Metal (Inorg)	CN (Inorg)	DRO GRO	IC Anions	TCLP Met	Hydrazine

TCLP LEACHATE

MATRIX CODES
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected	0624X N	0625X	OPCB	OHBGX	O408N	OGCSC	ICR6	MET(1)		ODRO OGRO	INORG(1)	ITCLP	IHYZN	RCRATCW
001	B14DJ8	✓	✓	S	4-23-02	1240	1	1	1	1	1	1	1	1		1	1	1	1	
002	B14DJ8 tclp of 001	✓	✓	L	*															✓

* See Labchron

Special Instructions: SAF # B02-050

DATE/REVISIONS:

1. MET(1) RCRA + Be, B, Cu, Mg, Mn, Mo, Ni, V, Zn
2. INORG(1) ICFL, ICNO3, ICSO4, INH3N, IN3N2, ISFD
3. OGCSC Alcohols, Glycols, + Ketones
4. 5-1-02 Cancel 0624X Add 0624N
5. 5-7-02 Cancel OHBGN Add OHBGX
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # See Below
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 1.5 °C

Relinquished by	Received by	Date	Time
Fed Ex	V. Hernandez	4-30-02	1005

Relinquished by	Received by	Date	Time

COMPOSITE WASTE

ORIGINAL REWRITTEN

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES: 790515211761

UOUTL V04

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-050-01	Page 1 of 2

Collector R. Fahlberg/R. Nielson	**Company Contact** Duane Jacques	**Telephone No.** 372-9651	**Project Coordinator** TRENT, SJ	**Price Code** 8N	**Data Turnaround** 45 Days
Project Designation 216-Z-11 Ditch Borehole Samples	**Sampling Location** 200 West		**SAF No.** B02-050	**Air Quality** ☐	
Ice Chest No. ERC-02-008	**Field Logbook No.** EL-1517-	**COA** B20CW5674C	**Method of Shipment** Federal Express		
Shipped To TMA/RECRA	**Offsite Property No.** AP20488		**Bill of Lading/Air Bill No.** See OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive Potential
Tie to B14DL7

Special Handling and/or Storage
Cool

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	aG	aG	aG	P	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	120mL	250mL	120mL	1000mL	120mL	250mL	120mL	250mL	250mL	250mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	See item (3) in Special Instructions.	Hydrazine - D1385	PCBs - 8082	Pesticides - 8081	Herbicides - 8150A	See item (4) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015 (Methanol)
Sample No.	**Matrix ***	**Sample Date**	**Sample Time**							
B14DJ8	SOIL	4-23-02	1240	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg R. Fahlberg	4-23-02 1615	Ref 1-A	4-23-02 1615
Ref 1A 3728	4-24-02 0800	R. Thorp	4-24-02 0800
R. Thorp	4-24-02	Fedex	
Fedex	4-30-02 1005		4-30-02 1005

SPECIAL INSTRUCTIONS
See COC comments on SAF

(1) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Boron, Copper, Magnesium, Manganese, Molybdenum, Nickel, Vanadium, Zinc}; Mercury - 7470 - (CV)
(3) IC Anions - 300.0 {Fluoride, Nitrate, Sulfate}; Ammonia - 350.3; NO2/NO3 - 353.1; Sulfides - 9030
(4) VOA - 8260A (TCL); VOA - 8260A (Add-On) {Trichloromonofluoromethane}; VOA - 8260A (App IX Add-On) {Tetrahydrofuran}

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4-29-02

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B02-050-01	Page 2 of 2
Collector R. Fahlberg/R. Nielson	Company Contact Duane Jacques	Telephone No. 372-9651	Project Coordinator TRENT, SJ	Price Code 8N / Data Turnaround
Project Designation 216-Z-11 Ditch Borehole Samples	Sampling Location 200 West		SAF No. B02-050	Air Quality ☐ / 45 Days
Ice Chest No. ERC 02-008	Field Logbook No. EL-1517-	COA B20CW5674C	Method of Shipment Federal Express	
Shipped To TMA/RECRA	Offsite Property No. A020088		Bill of Lading/Air Bill No. see OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive Potential Tie to B14DL7

Special Handling and/or Storage

Cool

Preservation	Cool 4C	Cool 4C	None RT 4.24.02	None RT 4.24.02
Type of Container	aG	aG	P	aG
No. of Container(s)	1	1	1	1
Volume	250mL	120mL	1000mL	120mL
SAMPLE ANALYSIS	RJN 4-16-02 See item (5) in Special Instructions.	TPH-Diesel Range - WTPH-D; TPH-Gasoline Range - WTPH-G	RJN 4-16-02 See item (6) in Special Instructions.	RJN 4/16/02 See item (7) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time				
B14DJ8	SOIL	4-23-02	1240	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Fahlberg / R. Fahlberg	4-23-02 1615	RT 1-A	4-23-02 1615
RT 1A 3728	4.29.02 0800	RT / R Thoren	4.29.02 0800
RT / R Thoren ERC	4.29.02 0830	FED EX	4.29.02
Fed Ex	4-30-02 1005	V. Neumann	4-30-02 1005

SPECIAL INSTRUCTIONS

See COC comments on SAF
RJN 4-16-02
5(1) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate} Antimony-125
6(2) ~~Gamma Spec - Complete {Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Niobium-94, Radium-226, Radium-228}; Isotopic Thorium {Thorium-232}; Carbon-14, Neptunium-237, Nickel-63, Strontium-89,90 -- Total Sr, Technetium-99, Tritium - H3, Isotopic Uranium~~
7(3) ~~Isotopic Plutonium, Americium-241/Curium-244 {Americium-241}; Americium-241/Curium-244 (Add-on) {Curium-243}~~
RT 4.24.02

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/29/02 RT

Matrix *: S=Soil, SE=Sediment, SO=Solid, SL=Sludge, W=Water, O=Oil, A=Air, DS=Drum Solids, DL=Drum Liquids, T=Tissue, WI=Wipe, L=Liquid, V=Vegetation, X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project:

DATE: 4.30.02

SAF# / SOW# / Release #: B02-050

Laboratory SDG #: 0204L529

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1. Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
2. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
3. Airbill # recorded?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
5. Sample containers are intact?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
7. All samples on coc received?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
8. All sample label information matches coc?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
10. Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
11. Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12. coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13. coc faxed or emailed to client?	☐ Yes	☐ No	☐ N/A	☐ see Comment #
14. Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☐ N/A	☐ see Comment #

Cooler # / temp and Comments:

2 .008 1.5

Laboratory Sample Custodian:

Laboratory Project Manager:

Lionville Laboratory, Inc.
HBGX ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-050 H1760

DATE RECEIVED: 04/30/02 LVL LOT # :0204L529

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B14DJ8	001	S	02LE0491	04/23/02	05/03/02	05/05/02
B14DJ8	001 MS	S	02LE0491	04/23/02	05/03/02	05/05/02
B14DJ8	001 MSD	S	02LE0491	04/23/02	05/03/02	05/05/02
LAB QC:						
PBLKNT	MB1	S	02LE0491	N/A	05/03/02	05/05/02
PBLKNT	MB1 BS	S	02LE0491	N/A	05/03/02	05/05/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B02-050
LVL #: 0204L529
SDG/SAF#: H1760/B02-050

W.O.#: 11343-606-001-9999-00
Date Received: 04-30-2002

HERBICIDE

One (1) soil sample was collected on 04-23-2002.

The sample and its associated QC samples were extracted on 05-03-2002 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 05-05-2002. The extraction and analysis procedures were based on method 8151A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of cooler temperature, which has been recorded on the chain of custody.

2. The required holding time for extraction and analysis was met.

3. The method blank was below the reporting limits for all target compounds.

4. All surrogate recoveries were within client specified acceptance criteria.

5. All blank spike recoveries were within client specified acceptance criteria.

6. All matrix spike recoveries were within acceptance criteria.

7. All initial calibrations associated with this data set were within acceptance criteria.

8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/15/02
Date

som\r:\group\data\herb\tnu\04t529.doc

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

VLI
VORTEX LABORATORY INC

GLOSSARY OF PESTICIDE/PCB DATA

ATA QUALIFIERS

= Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

= Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

= This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.

= Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

= Interference.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

VLI
VILLE LABORATORY INC.

GLOSSARY OF PESTICIDE/PCB DATA

= This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

= This flag identifies all compounds identified in an analysis at a secondary dilution factor.

= This flag applies to a compound that has been confirmed by GC/MS.

R:/SHARE/HPLC/PESTICIDE/PCBGLOS

Lionville Laboratory, Inc.

Herbicides, Special List

Report Date: 05/10/02 08:24

RFW Batch Number: 0204L529 Client: TNUHANFORD B02-050 H1760 Work Order: 11343606001 Page: 1

	Cust ID:	B14DJ8	B14DJ8	B14DJ8	PBLKNT	PBLKNT BS
Sample	RFW#:	001	001 MS	001 MSD	02LE0491-MB1	02LE0491-MB1
Information	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg

Surrogate:	DCAA	101 %	97 %	71 %	88 %	73 %
		fl	fl	fl	fl	fl fl
2,4-D		36 U	111 %	83 %	33 U	86 %
2,4,5-TP (Silvex)		18 U	123 %	92 %	17 U	89 %
2,4,5-T		18 U	107 %	103 %	17 U	106 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

(U) VOH

Lionville Laboratory Use Only

02O4L529

Custody Transfer Record/Lab Work Request

Page 1 of 1

LvLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNU-HANFORD B02-050

Est. Final Proj. Sampling Date

Project # 11343-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager OJ

QC SPEC Del STD TAT 30 days

Date Rec'd 4-30-02 Date Due 5-30-02

	A	B	C	D	E	F	G	H		I	J	K	L		
Refrigerator #	1	5	5	5	5	5	5	5		5	5	5	5		
#/Type Container Liquid															
#/Type Container Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG	1AG		1AG	1PL	1AG	1AG	TCLP	
Volume Liquid															
Volume Solid	250	250	250	250	120	250	120	250		120	L	250	120		
Preservatives	—	—	—	—	—	—	—	—		—	—	—	—		
ANALYSES REQUESTED	ORGANIC VOA	BNA	Pest PCB	Herb	Pest	Alcoh Glyc Ket	Hex Chrom	INORG Metal	CN	DRO GRO	IC Anions	TCLP Met	Ammonia	LEACH	
Lionville Laboratory Use Only	0624X 0624N	0625X	OPCB	OHBGN OHBGX	0608N	OGCSC	ICR6	MET(1)		ODRO OGRO	INORG(1)	ITCLP	ZHYZN	RCRATCLP	

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected	A	B	C	D	E	F	G	H		I	J	K	L	TCLP	
001	B14DJ8	✓	✓	S	4-23-02	1240	1	1	1	1	1	1	1	1		1	1	1	1		
002	B14DJ8 tclp of 001	✓	✓	L	*															✓	
					*	See	Labchron														

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Special Instructions: SAF # B02-050

DATE/REVISIONS:
MET(1) 1. RCRA + Be, B, Cu, Mg, Mn, Mo, Ni, V, Zn
INORG(1) 2. ICFL, ICNO3, ICSO4, INH3N, IN3N2, ISFD
OGCSC 3. Alcohols, Glycols, + Ketones
5-1-02 4. Cancel 0624X Add 0624N
5-7-02 5. Cancel OHBGN Add OHBGX
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # See Below
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 1.5 °C

Relinquished by	Received by	Date	Time
[signature]	V. [signature]	4-30-02	1005

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES: 7905 1521 1761

0204L529

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-050-01	Page 1 of 2

Collector R. Fahlberg/R. Nielson	**Company Contact** Duane Jacques	**Telephone No.** 372-9651	**Project Coordinator** TRENT, SJ	**Price Code** 8N	**Data Turnaround** 45 Days
Project Designation 216-Z-11 Ditch Borehole Samples	**Sampling Location** 200 West		**SAF No.** B02-050	**Air Quality** ☐	
Ice Chest No. ERC-02-008	**Field Logbook No.** EL-1517-	**COA** B20CW5674C	**Method of Shipment** Federal Express		
Shipped To TMA/RECRA	**Offsite Property No.** AP20488		**Bill of Lading/Air Bill No.** See OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive Potential
Tie to B14DL7

Special Handling and/or Storage
Cool

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	aG	aG	aG	P	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	120mL	250mL	120mL	1000mL	120mL	250mL	120mL	250mL	250mL	250mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	See item (3) in Special Instructions.	Hydrazine - D1385	PCBs - 8082	Pesticides - 8081	Herbicides - 8150A	See item (4) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015 (Methanol)
Sample No.	**Matrix ***	**Sample Date**	**Sample Time**							
B14DJ8	SOIL	4-23-02	1240	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg/R. Nielson	4-23-02 1615	Ref 1-A	4-23-02 1615
Ref 1A 3728	4-29-02 0800	R Thorson	4-29-02 0800
R Thorson	4-29-02 0800	FedEx	
FedEx	4-30-02 1005		4-30-02 1005

SPECIAL INSTRUCTIONS
See COC comments on SAF

(1) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470
(2) *ICP Metals - 6010A (Supertrace)* {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Boron, Copper, Magnesium, Manganese, Molybdenum, Nickel, Vanadium, Zinc}; Mercury - 7470 - (CV)
(3) IC Anions - 300.0 {Fluoride, Nitrate, Sulfate}; Ammonia - 350.3; NO2/NO3 - 353.1; Sulfides - 9030
(4) VOA - 8260A (TCL); VOA - 8260A (Add-On) {Trichloromonofluoromethane}; VOA - 8260A (App IX Add-On) {Tetrahydrofuran}

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/29/02

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-050-01	Page 2 of 2
Collector: R. Fahlberg/R. Nielson	Company Contact: Duane Jacques — Telephone No.: 372-9651	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: 216-Z-11 Ditch Borehole Samples	Sampling Location: 200 West	SAF No.: B02-050	Air Quality ☐
Ice Chest No.: ERC 02-008	Field Logbook No.: EL-1517- — COA: B20CW5674C	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA	Offsite Property No.: A020088	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive Potential Tie to B14DL7

Special Handling and/or Storage

Cool

Preservation	Cool 4C	Cool 4C	[illegible] RT 4.24.02	None RT 4.24.02
Type of Container	aG	aG		aG
No. of Container(s)	1	1		1
Volume	250mL	120mL	1000mL	120mL
	RJN 4-16-02		RJN 4-16-02	RJN 4/16/02
SAMPLE ANALYSIS	See item (5) in Special Instructions.	TPH-Diesel Range - WTPH-D; TPH-Gasoline Range - WTPH-G	See item (6) in Special Instructions.	See item (7) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time				
B14DJ8	SOIL	4-23-02	1240	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R.Fahlberg R.Fahlberg	4-23-02 1615	Ref 1-A	4-23-02 1615
Ref 1A 3728	4-29-02 0800	R T CRThor[illegible]	4-29-02 0800
R T CRThoren ERC	4-29-02 0800	FED EX	4-29-02
Fed Ex	4-30-02 1005	[illegible signature]	4-30-02 1005

SPECIAL INSTRUCTIONS

See COC comments on SAF

RJN 4-16-02

5 ~~(1)~~ Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}

6 ~~(2) Gamma Spec - Complete {Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Niobium-94, Radium-226, Radium-228}, Isotopic Thorium {Thorium-232}, Carbon-14, Neptunium-237, Nickel-63, Strontium-89,90 -- Total Sr, Technetium-99, Tritium - H3, Isotopic Uranium~~ Antimony-125

7 ~~(3) Isotopic Plutonium, Americium-241/Curium-244 {Americium-241}; Americium-241/Curium-244 (Add-on) {Curium-243}~~

RT 4.24.02

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/29/02 RT

Matrix *

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project:

DATE: 4.30.02

SAF# / SOW# / Release #: B02-050

Laboratory SDG #: 0204L529

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
3.	Airbill # recorded?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
5.	Sample containers are intact?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
6.	Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
7.	All samples on coc received?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
8.	All sample label information matches coc?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
10.	Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12.	coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13.	coc faxed or emailed to client?	☐ Yes	☐ No	☐ N/A	☐ see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☐ N/A	☐ see Comment #

Cooler # / temp and Comments:

2 .008 1.5

Laboratory Sample Custodian: Vicki Kennedy

Laboratory Project Manager:

Lionville Laboratory, Inc.

DRO ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B02-050 H1760

DATE RECEIVED: 04/30/02 LVL LOT # :0204L552

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B14DJ8	001	S	02LE0477	04/23/02	05/01/02	05/05/02
B14DJ8	001 MS	S	02LE0477	04/23/02	05/01/02	05/05/02
B14DJ8	001 MSD	S	02LE0477	04/23/02	05/01/02	05/05/02
LAB QC:						
BLK	MB1	S	02LE0477	N/A	05/01/02	05/05/02
BLK	MB1 BS	S	02LE0477	N/A	05/01/02	05/05/02

5/9/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD B02-050
LVL#: 0204L529
SDG/SAF#: H1760/B02-050

W.O.#: 11343-606-001-9999-00
Date Received: 04-30-2002

DIESEL RANGE ORGANICS

One (1) soil sample was collected on 04-23-2002.

The sample and its associated QC samples were prepared on 05-01-2002 and analyzed according to Lionville Laboratory OPs based on EPA Method 8015B for Diesel Range Petroleum Hydrocarbons on 05-05-2002. The analysis met the intent of method WTPH-D.

1. All results presented in this report are derived from samples that met LVLI's sample acceptance policy with the exception of a cooler temperature, which has been recorded on the chain of custody.

2. The required holding time for extraction and analysis was met.

3. The method blank was below the reporting limits for all target compounds.

4. All surrogate recoveries were within acceptance criteria.

5. The blank spike recovery was within acceptance criteria.

6. The matrix spike recoveries were within acceptance criteria.

7. All initial calibrations associated with this data set were within acceptance criteria.

8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/15/02
Date

Som\r:\troup\data\dro\04L-529-tnu.doc

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

GLOSSARY OF DIESEL RANGE ORGANICS DATA

DATA QUALIFIERS

U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF DIESEL RANGE ORGANICS DATA

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor.

C = This flag applies to a compound that has been confirmed by GC/MS.

Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 05/06/02 09:50

RFW Batch Number: 0204L529 Client: TNU-HANFORD B02-050H1760 Work Order: 11343606001 Page: 1

	Cust ID:	B14DJ8	B14DJ8	B14DJ8	BLK	BLK BS
Sample Information	RFW#:	001	001 MS	001 MSD	02LE0477-MB1	02LE0477-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	p-Terphenyl	89 %	94 %	95 %	83 %	78 %
Diesel Range Organics		12.0 U	68 %	72 %	12.0 U	67 %
Motor Oil		12.0 U	12.0 U	12.0 U	12.0 U	12.0 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

(8) VOA

Lionville Laboratory Use Only: 0204L529

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-HANFORD B02-050

Est. Final Proj. Sampling Date

Project #: 11343-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 4-30-02 Date Due: 5-30-02

	A	B	C	D	E	F	G	H		I	J	K	L	
Refrigerator #	1	5	5	5	5	5	5	5		5	5	5	5	
#/Type Container – Liquid														
#/Type Container – Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG	1AG		1AG	1PL	1AG	1AG	
Volume – Liquid														
Volume – Solid	250	250	250	250	120	250	120	250		120	L	250	120	
Preservatives	–	–	–	–	–	–	–	–		–	–	–	–	
ANALYSES REQUESTED	ORGANIC: VOA	BNA	Pest PCB	Herb	Pest	Alcoh Glyc Ket	Hex Chrom	INORG: Metal	CN	ORO DGRO	IC Anions	TCLP Met	Hydrazine	LEACHATE

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected	0624N ~~X~~	0625X	OPCB	OHBGX ~~N~~	0408N	OGCSC	ICR6	MET①		DDRO DGRO	INORG①	ITCLP	ZHYZN	RCRATCLP
001	B14DJ8	✓	✓	S	4-23-02	1240	1	1	1	1	1	1	1	1		1	1	1	1	
002	B14DJ8 tclp of 001	✓	✓	L	*															✓

* See Labchron

MATRIX CODES: S - Soil; SE - Sediment; SO - Solid; SL - Sludge; W - Water; O - Oil; A - Air; DS - Drum Solids; DL - Drum Liquids; L - EP/TCLP Leachate; WI - Wipe; X - Other; F - Fish

Special Instructions: SAF # B02-050

DATE/REVISIONS:

MET① 1. RCRA + Be, B, Cu, Mg, Mn, Mo, Ni, V, Zn

INORG① 2. ICFL, ICNO3, ICSO4, INH3N, INJN2, ISFD

OGCSC 3. Alcohols, Glycols, + Ketones

5-1-02 4. Cancel 0624X Add 0624N

5-7-02 5. Cancel OHBGN Add OHBGX

6.

Lionville Laboratory Use Only

Samples were: 1) Shipped ✓ or Hand Delivered; Airbill # See Below

2) Ambient or Chilled (Chilled)

3) Received in Good Condition (Y) or N

4) Samples Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was:

1) Present on Outer Package (Y) or N

2) Unbroken on Outer Package (Y) or N

3) Present on Sample (Y) or N

4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 1.5 °C

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Fed Ex	V. Hernandez	4-30-02	1005				

COMPOSITE WASTE

ORIGINAL REWRITTEN

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES: 7905 1521 1761

0204L 529

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B02-050-01	Page 1 of 2
Collector: R. Fahlberg/R. Nielson	Company Contact: Duane Jacques	Telephone No.: 372-9651	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 216-Z-11 Ditch Borehole Samples	Sampling Location: 200 West		SAF No.: B02-050	Air Quality ☐
Ice Chest No.: ERC-02-008	Field Logbook No.: EL-1517-	COA: B20CW5674C	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA	Offsite Property No.: AP20488		Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive Potential
Tie to B14DL7

Special Handling and/or Storage
Cool

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	aG	aG	aG	P	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	120mL	250mL	120mL	1000mL	120mL	250mL	120mL	250mL	250mL	250mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	See item (3) in Special Instructions.	Hydrazine - D1385	PCBs - 8082	Pesticides - 8081	Herbicides - 8150A	See item (4) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015 (Methanol)
Sample No. / Matrix * / Sample Date / Sample Time										
B14DJ8 / SOIL / 4-23-02 / 1240	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg R. Fahlberg	4.23.02 1615	Ref 1-A	4.23.02 1615
Ref 1A 3728	4.29.02 0800	R. Thorel	4.29.02 0800
R. Thorel	4.29.02 0800	FedEx	
FedEx	4.30.02 1005		4.30.02 1005
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS
See COC comments on SAF

(1) Metals by ICP (TCLP) - 1311/6010 (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Mercury (TCLP) - 1311/7470
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Boron, Copper, Magnesium, Manganese, Molybdenum, Nickel, Vanadium, Zinc}; Mercury - 7470 - (CV)
(3) IC Anions - 300.0 {Fluoride, Nitrate, Sulfate}; Ammonia - 350.3; NO2/NO3 - 353.1; Sulfides - 9030
(4) VOA - 8260A (TCL); VOA - 8260A (Add-On) {Trichloromonofluoromethane}; VOA - 8260A (App IX Add-On) {Tetrahydrofuran}

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/29/02

Matrix *: S=Soil; SD=Sediment; SO=Solid; SL=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; WI=Wipe; L=Liquid; V=Vegetation; X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-050-01	Page 2 of 2

Collector R. Fahlberg/R. Nielson	**Company Contact** Duane Jacques	**Telephone No.** 372-9651	**Project Coordinator** TRENT, SJ	**Price Code** 8N	**Data Turnaround** 45 Days
Project Designation 216-Z-11 Ditch Borehole Samples	**Sampling Location** 200 West		**SAF No.** B02-050	**Air Quality** ☐	
Ice Chest No. ERC 02-008	**Field Logbook No.** EL-1517-	**COA** B20CW5674C	**Method of Shipment** Federal Express		
Shipped To TMA/RECRA	**Offsite Property No.** AØ20088		**Bill of Lading/Air Bill No.** See OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive Potential
Tie to B14DL7

Special Handling and/or Storage
Cool

Preservation	Cool 4C	Cool 4C	HNO3 RT 4.24	None RT 4.24.02						
Type of Container	aG	aG	P	aG						
No. of Container(s)	1	1	1	1						
Volume	250mL RJN 4-16-02	120mL	1000mL RJN 4-16-02	120mL RJN 4/16/02						
SAMPLE ANALYSIS	See item (1) in Special Instructions. 5	TPH-Diesel Range - WTPH-D; TPH-Gasoline Range - WTPH-G	See item (2) in Special Instructions. 6	See item (3) in Special Instructions. 7						
Sample No.	**Matrix ***	**Sample Date**	**Sample Time**							
B14DJ8	SOIL	4-23-02	1240	X	X	X	X			

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Fahlberg R Fahlberg	4-23-02 1615	RT 1-A	4-23-02 1615
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Ref 1A 3728 4.29.02 R.T. Trent	0800	R.T. Trent	0800 4-29-02
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R.T. Trent ERC 4-29-02	0800 4-29-02	FED EX	4290
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex 4-30-02	1005	[illegible] 4-30-02	1005
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS
See COC comments on SAF
RJN 4-16-02
5(1) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) (1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate) Antimony-125
~~6(2) Gamma Spec - Complete (Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Niobium-94, Radium-226, Radium-228), Isotopic Thorium (Thorium-232), Carbon-14, Neptunium-237, Nickel-63, Strontium-89,90 -- Total Sr, Technetium-99, Tritium - H3, Isotopic Uranium~~
~~7(3) Isotopic Plutonium, Americium-241/Curium-244 (Americium-241); Americium-241/Curium-244 (Add-on) (Curium-243)~~
RT 4.24.02

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/29/02 RT

Matrix *
S=Soil
SD=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project:

DATE: 4.30.02

SAF# / SOW# / Release #: B02-050

Laboratory SDG #: 0204L529

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
3.	Airbill # recorded?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
5.	Sample containers are intact?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
6.	Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
7.	All samples on coc received?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
8.	All sample label information matches coc?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12.	coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13.	coc faxed or emailed to client?	☐ Yes	☐ No	☐ N/A	☐ see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☐ N/A	☐ see Comment #

Cooler # / temp and Comments:

2 -008 1.5

Laboratory Sample Custodian: Vicki Kennedy

Laboratory Project Manager:

Lionville Laboratory, Inc.
GCSC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B02-050 #1760

DATE RECEIVED: 04/30/02 LVL LOT # :0204L529

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B14DJ8	001	S	02LE0493	04/23/02	05/05/02	05/05/02
B14DJ8	001 MS	S	02LE0493	04/23/02	05/05/02	05/05/02
B14DJ8	001 MSD	S	02LE0493	04/23/02	05/05/02	05/05/02
LAB QC:						
BLK	MB1	S	02LE0493	N/A	05/05/02	05/05/02
BLK	MB1 BS	S	02LE0493	N/A	05/05/02	05/05/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD B02-050
LVL#: 0204L529
SDG/SAF#: H1760/B02-050

W.O.#: 11343-606-001-9999-00
Date Received: 04-30-02

GC SCAN

One (1) soil sample was collected on 04-23-02.

The sample and its associated QC samples were extracted and analyzed for Methanol on 05-05-02.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy
2. All required holding times for analysis have been met.
3. The method blank was below the reporting limits for all target compounds.
4. Surrogates are not currently employed in the methodology.
5. The blank spike recovery was within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. All initial calibrations were within acceptance criteria.
8. All continuing calibrations run prior to analysis for 2-ethoxyethanol were within acceptance criteria.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

5/8/02
Date

r:\group\data\gcsc\04L-529.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 9 pages.

GLOSSARY OF GC SCAN DATA

DATA QUALIFIERS

U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF GC SCAN DATA

P = This flag is used for an GC SCAN target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor.

C = This flag applies to a compound that has been confirmed by GC SCAN.

Lionville Laboratory, Inc.

GC SCAN

Report Date: 05/06/02 14:05

RFW Batch Number: **0204L529** Client: **TNU-HANFORD B02-050** Work Order: 11343606001 Page: 1

	Cust ID:	B14DJ8	B14DJ8	B14DJ8	BLK	BLK BS
Sample Information	RFW#:	001	001 MS	001 MSD	02LE0493-MB1	02LE0493-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg

Methanol	28 U	72 %	75 %	25 U	97 %	

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Lionville Laboratory Use Only
02044529

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI — Lionville Laboratory Inc

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-HANFORD B02-050

Est. Final Proj. Sampling Date: ______

Project #: 11343-606-001-9999-00

Project Contact/Phone #: ______

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 4-30-02 Date Due: 5-30-02

	A	B	C	D	E	F	G	H		I	J	K	L	
Refrigerator #	1	5	5	5	5	5	5	5		5	5	5	5	
#/Type Container – Liquid														
#/Type Container – Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG	1AG		1AG	1PL	1AG	1AG	LEACHATE
Volume – Liquid														
Volume – Solid	250	250	250	250	120	250	120	250		120	L	250	120	
Preservatives	—	—	—	—	—	—	—	—		—	—	—	—	
ANALYSES REQUESTED	ORGANIC: VOA	BNA	Pest/PCB	Herb	Pest	Alcohol Glyc Ket	Hex Chrom	INORG: Metal	CN	ORO OGRO	IC Anions	TCLP Met	Hydrazine	
Lionville Laboratory Use Only	0624N (0624X)	0625X	OPCB	OHBGX (OHBGN)	0408N	OGCSC	ICR6	MET①		ODRO OGRO	INORG①	ITCLP	IHYZN	RCRATCLP

MATRIX CODES: S - Soil; SE - Sediment; SO - Solid; SL - Sludge; W - Water; O - Oil; A - Air; DS - Drum Solids; DL - Drum Liquids; L - EP/TCLP Leachate; WI - Wipe; X - Other; F - Fish

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected	A	B	C	D	E	F	G	H	CN	I	J	K	L	Leachate
001	B14DJ8	✓	✓	S	4-23-02	1240	1	1	1	1	1	1	1	1		1	1	1	1	
002	B14DJ8 tclp of 001	✓	✓	L	*															✓

* See Labchron

Special Instructions: SAF # B02-050

DATE/REVISIONS:

MET①	1. RCRA + Be, B, Cu, Mg, Mn, Mo, Ni, V, Zn
INORG①	2. ICFL, ICNO3, ICSO4, INH3N, IN3N2, ISFD
OGCSC	3. Alcohols, Glycols, + Ketones
5-1-02	4. Cancel 0624X Add 0624N
5-7-02	5. Cancel OHBGN Add OHBGX
	6.

Lionville Laboratory Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill # See Below
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 1.5 °C

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	4-30-02	1005

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES: 790515211761

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-050-01	Page 1 of 2

Collector R. Fahlberg/R. Nielson	Company Contact Duane Jacques	Telephone No. 372-9651	Project Coordinator TRENT, SJ
Project Designation 216-Z-11 Ditch Borehole Samples	Sampling Location 200 West		SAF No. B02-050
Ice Chest No. ERC-02-008	Field Logbook No. EL-1517-	COA B20CW5674C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. AØ20Ø88		Bill of Lading/Air Bill No. See OSPC

Price Code 8N

Data Turnaround 45 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive Potential

Tie to B14DL7

Special Handling and/or Storage

Cool

			Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
			Type of Container	aG	aG	aG	P	aG	aG	aG	aG	aG	aG
			No. of Container(s)	1	1	1	1	1	1	1	1	1	1
			Volume	120mL	250mL	120mL	1000mL	120mL	250mL	120mL	250mL	250mL	250mL
SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	See item (3) in Special Instructions.	Hydrazine - D1385	PCBs - 8082	Pesticides - 8081	Herbicides - 8150A	See item (4) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015 {Methanol}
Sample No.	Matrix *	Sample Date	Sample Time										
B14DJ8	SOIL	4-23-02	1240	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg / R. Fahlberg	4-23-02 1615	Ref 1-A	4-23-02 1615
Ref 1A 3728	4-29-02 0800	R. T. ... / R. Thorp	4-29-02 0800
R. Thorp / ERC	4-29-02 0800	FedEx	
FedEx	4-30-02 1005	[illegible]	4-30-02 1005

SPECIAL INSTRUCTIONS

See COC comments on SAF

(1) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470

(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Boron, Copper, Magnesium, Manganese, Molybdenum, Nickel, Vanadium, Zinc}; Mercury - 7470 - (CV)

(3) IC Anions - 300.0 {Fluoride, Nitrate, Sulfate}; Ammonia - 350.3; NO2/NO3 - 353.1; Sulfides - 9030

(4) VOA - 8260A (TCL); VOA - 8260A (Add-On) {Trichloromonofluoromethane}; VOA - 8260A (App IX Add-On) {Tetrahydrofuran}

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/29/02 RT

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-050-01	Page 2 of 2

Collector R. Fahlberg/R. Nielson	**Company Contact** Duane Jacques **Telephone No.** 372-9651	**Project Coordinator** TRENT, SJ	**Price Code** 8N **Data Turnaround** 45 Days
Project Designation 216-Z-11 Ditch Borehole Samples	**Sampling Location** 200 West	**SAF No.** B02-050	**Air Quality** ☐
Ice Chest No. ERC 02-008	**Field Logbook No.** EL-1517- **COA** B20CW5674C	**Method of Shipment** Federal Express	
Shipped To TMA/RECRA	**Offsite Property No.** A020088	**Bill of Lading/Air Bill No.** see OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive Potential

Tie to B14DL7

Special Handling and/or Storage

Cool

Preservation	Cool 4C	Cool 4C	~~None~~ RT 4.24.02	~~None~~ RT 4.24.02
Type of Container	aG	aG	~~aG~~	aG
No. of Container(s)	1	1	~~1~~	1
Volume	250mL	120mL	~~1000mL~~	120mL
	RJN 4-16-02		RJN 4-16-02	RJN 4/16/02
SAMPLE ANALYSIS	See item 5 (1) in Special Instructions.	TPH-Diesel Range - WTPH-D; TPH-Gasoline Range - WTPH-G	~~See item (2) in Special Instructions.~~ 6	~~See item (3) in Special Instructions.~~ 7

Sample No.	Matrix *	Sample Date	Sample Time				
B14DJ8	SOIL	4-23-02	1240	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Fahlberg / R. Fahlberg	4-23-02 1615	RT 1-A	4-23-02 1615
Ref 1A 3728	4.29.02 0800	RT / R Thorn	4.29.02 0800
RT / R Thorn ERC	4.29.02 0800	FED EX	4.29.02
Fed Ex	4-30-02 1005	[illegible signature]	4-30-02 1005

SPECIAL INSTRUCTIONS

See COC comments on SAF

RJN 4-16-02

5 (1) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}

~~6 (2) Gamma Spec - Complete {Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Niobium-94, Radium-226, Radium-228}, Isotopic Thorium {Thorium-232}, Carbon-14, Neptunium-237, Nickel-63, Strontium-89,90 -- Total Sr, Technetium-99, Tritium - H3, Isotopic Uranium~~ Antimony-125

~~7 (3) Isotopic Plutonium, Americium-241/Curium-244 {Americium-241}; Americium-241/Curium-244 (Add-on) {Curium-243}~~

RT 4.24.02

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/29/02 RT

Matrix *

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project:

DATE: 4·30·02

SAF# / SOW# / Release #: B02-050

Laboratory SDG #: 0204L529

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
3.	Airbill # recorded?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
5.	Sample containers are intact?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
6.	Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
7.	All samples on coc received?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
8.	All sample label information matches coc?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
10.	Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12.	coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13.	coc faxed or emailed to client?	☐ Yes	☐ No	☐ N/A	☐ see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☐ N/A	☐ see Comment #

Cooler # / temp and Comments:

ee 1-008 1·5

Laboratory Sample Custodian:

Laboratory Project Manager:

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-050 H1760

DATE RECEIVED: 04/30/02 LVL LOT # :0204L529

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B14DJ8						
TCLP	001	S	02LTO210	04/23/02	05/01/02	05/02/02
SILVER, TOTAL	001	S	02L0248	04/23/02	05/11/02	05/14/02
SILVER, TOTAL	001 REP	S	02L0248	04/23/02	05/11/02	05/14/02
SILVER, TOTAL	001 MS	S	02L0248	04/23/02	05/11/02	05/14/02
ARSENIC, TOTAL	001	S	02L0248	04/23/02	05/11/02	05/14/02
ARSENIC, TOTAL	001 REP	S	02L0248	04/23/02	05/11/02	05/14/02
ARSENIC, TOTAL	001 MS	S	02L0248	04/23/02	05/11/02	05/14/02
BORON, TOTAL	001	S	02L0248	04/23/02	05/11/02	05/14/02
BORON, TOTAL	001 REP	S	02L0248	04/23/02	05/11/02	05/14/02
BORON, TOTAL	001 MS	S	02L0248	04/23/02	05/11/02	05/14/02
BARIUM, TOTAL	001	S	02L0248	04/23/02	05/11/02	05/14/02
BARIUM, TOTAL	001 REP	S	02L0248	04/23/02	05/11/02	05/14/02
BARIUM, TOTAL	001 MS	S	02L0248	04/23/02	05/11/02	05/14/02
BERYLLIUM, TOTAL	001	S	02L0248	04/23/02	05/11/02	05/14/02
BERYLLIUM, TOTAL	001 REP	S	02L0248	04/23/02	05/11/02	05/14/02
BERYLLIUM, TOTAL	001 MS	S	02L0248	04/23/02	05/11/02	05/14/02
CADMIUM, TOTAL	001	S	02L0248	04/23/02	05/11/02	05/14/02
CADMIUM, TOTAL	001 REP	S	02L0248	04/23/02	05/11/02	05/14/02
CADMIUM, TOTAL	001 MS	S	02L0248	04/23/02	05/11/02	05/14/02
CHROMIUM, TOTAL	001	S	02L0248	04/23/02	05/11/02	05/14/02
CHROMIUM, TOTAL	001 REP	S	02L0248	04/23/02	05/11/02	05/14/02
CHROMIUM, TOTAL	001 MS	S	02L0248	04/23/02	05/11/02	05/14/02
COPPER, TOTAL	001	S	02L0248	04/23/02	05/11/02	05/14/02
COPPER, TOTAL	001 REP	S	02L0248	04/23/02	05/11/02	05/14/02
COPPER, TOTAL	001 MS	S	02L0248	04/23/02	05/11/02	05/14/02
MERCURY, TOTAL	001	S	02C0123	04/23/02	05/07/02	05/08/02
MERCURY, TOTAL	001 REP	S	02C0123	04/23/02	05/07/02	05/08/02
MERCURY, TOTAL	001 MS	S	02C0123	04/23/02	05/07/02	05/08/02
MAGNESIUM, TOTAL	001	S	02L0248	04/23/02	05/11/02	05/14/02
MAGNESIUM, TOTAL	001 REP	S	02L0248	04/23/02	05/11/02	05/14/02
MAGNESIUM, TOTAL	001 MS	S	02L0248	04/23/02	05/11/02	05/14/02
MANGANESE, TOTAL	001	S	02L0248	04/23/02	05/11/02	05/14/02
MANGANESE, TOTAL	001 REP	S	02L0248	04/23/02	05/11/02	05/14/02
MANGANESE, TOTAL	001 MS	S	02L0248	04/23/02	05/11/02	05/14/02
MOLYBDENUM, TOTAL	001	S	02L0248	04/23/02	05/11/02	05/14/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-050 H1760

DATE RECEIVED: 04/30/02 LVL LOT # :0204L529

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MOLYBDENUM, TOTAL	001 REP	S	02L0248	04/23/02	05/11/02	05/14/02
MOLYBDENUM, TOTAL	001 MS	S	02L0248	04/23/02	05/11/02	05/14/02
NICKEL, TOTAL	001	S	02L0248	04/23/02	05/11/02	05/14/02
NICKEL, TOTAL	001 REP	S	02L0248	04/23/02	05/11/02	05/14/02
NICKEL, TOTAL	001 MS	S	02L0248	04/23/02	05/11/02	05/14/02
LEAD, TOTAL	001	S	02L0248	04/23/02	05/11/02	05/14/02
LEAD, TOTAL	001 REP	S	02L0248	04/23/02	05/11/02	05/14/02
LEAD, TOTAL	001 MS	S	02L0248	04/23/02	05/11/02	05/14/02
SELENIUM, TOTAL	001	S	02L0248	04/23/02	05/11/02	05/14/02
SELENIUM, TOTAL	001 REP	S	02L0248	04/23/02	05/11/02	05/14/02
SELENIUM, TOTAL	001 MS	S	02L0248	04/23/02	05/11/02	05/14/02
VANADIUM, TOTAL	001	S	02L0248	04/23/02	05/11/02	05/14/02
VANADIUM, TOTAL	001 REP	S	02L0248	04/23/02	05/11/02	05/14/02
VANADIUM, TOTAL	001 MS	S	02L0248	04/23/02	05/11/02	05/14/02
ZINC, TOTAL	001	S	02L0248	04/23/02	05/11/02	05/14/02
ZINC, TOTAL	001 REP	S	02L0248	04/23/02	05/11/02	05/14/02
ZINC, TOTAL	001 MS	S	02L0248	04/23/02	05/11/02	05/14/02
SILVER, TCLP LEACHAT	002	W	02L0241	05/02/02	05/08/02	05/08/02
SILVER, TCLP LEACHAT	002 REP	W	02L0241	05/02/02	05/08/02	05/08/02
SILVER, TCLP LEACHAT	002 MS	W	02L0241	05/02/02	05/08/02	05/08/02
ARSENIC, TCLP LEACHA	002	W	02L0241	05/02/02	05/08/02	05/08/02
ARSENIC, TCLP LEACHA	002 REP	W	02L0241	05/02/02	05/08/02	05/08/02
ARSENIC, TCLP LEACHA	002 MS	W	02L0241	05/02/02	05/08/02	05/08/02
BARIUM, TCLP LEACHAT	002	W	02L0241	05/02/02	05/08/02	05/08/02
BARIUM, TCLP LEACHAT	002 REP	W	02L0241	05/02/02	05/08/02	05/08/02
BARIUM, TCLP LEACHAT	002 MS	W	02L0241	05/02/02	05/08/02	05/08/02
CADMIUM, TCLP LEACHA	002	W	02L0241	05/02/02	05/08/02	05/08/02
CADMIUM, TCLP LEACHA	002 REP	W	02L0241	05/02/02	05/08/02	05/08/02
CADMIUM, TCLP LEACHA	002 MS	W	02L0241	05/02/02	05/08/02	05/08/02
CHROMIUM, TCLP LEACH	002	W	02L0241	05/02/02	05/08/02	05/08/02
CHROMIUM, TCLP LEACH	002 REP	W	02L0241	05/02/02	05/08/02	05/08/02
CHROMIUM, TCLP LEACH	002 MS	W	02L0241	05/02/02	05/08/02	05/08/02
MERCURY, TCLP LEACHA	002	W	02C0120	05/02/02	05/02/02	05/03/02
MERCURY, TCLP LEACHA	002 REP	W	02C0120	05/02/02	05/02/02	05/03/02
MERCURY, TCLP LEACHA	002 MS	W	02C0120	05/02/02	05/02/02	05/03/02
LEAD, TCLP LEACHATE	002	W	02L0241	05/02/02	05/08/02	05/08/02
LEAD, TCLP LEACHATE	002 REP	W	02L0241	05/02/02	05/08/02	05/08/02
LEAD, TCLP LEACHATE	002 MS	W	02L0241	05/02/02	05/08/02	05/08/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-050 H1760

DATE RECEIVED: 04/30/02 LVL LOT # :0204L529

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TCLP LEACH	002	W	02L0241	05/02/02	05/08/02	05/08/02
SELENIUM, TCLP LEACH	002 REP	W	02L0241	05/02/02	05/08/02	05/08/02
SELENIUM, TCLP LEACH	002 MS	W	02L0241	05/02/02	05/08/02	05/08/02

LAB QC:

SILVER LABORATORY	LC1 BS	S	02L0248	N/A	05/11/02	05/13/02
SILVER, TOTAL	MB1	S	02L0248	N/A	05/11/02	05/13/02
ARSENIC LABORATORY	LC1 BS	S	02L0248	N/A	05/11/02	05/13/02
ARSENIC, TOTAL	MB1	S	02L0248	N/A	05/11/02	05/13/02
BORON LABORATORY	LC1 BS	S	02L0248	N/A	05/11/02	05/13/02
BORON, TOTAL	MB1	S	02L0248	N/A	05/11/02	05/13/02
BARIUM LABORATORY	LC1 BS	S	02L0248	N/A	05/11/02	05/13/02
BARIUM, TOTAL	MB1	S	02L0248	N/A	05/11/02	05/13/02
BERYLLIUM LABORATORY	LC1 BS	S	02L0248	N/A	05/11/02	05/13/02
BERYLLIUM, TOTAL	MB1	S	02L0248	N/A	05/11/02	05/13/02
CADMIUM LABORATORY	LC1 BS	S	02L0248	N/A	05/11/02	05/13/02
CADMIUM, TOTAL	MB1	S	02L0248	N/A	05/11/02	05/13/02
CHROMIUM LABORATORY	LC1 BS	S	02L0248	N/A	05/11/02	05/13/02
CHROMIUM, TOTAL	MB1	S	02L0248	N/A	05/11/02	05/13/02
COPPER LABORATORY	LC1 BS	S	02L0248	N/A	05/11/02	05/13/02
COPPER, TOTAL	MB1	S	02L0248	N/A	05/11/02	05/13/02
MERCURY LABORATORY	LC1 BS	S	02C0123	N/A	05/07/02	05/08/02
MERCURY, TOTAL	MB1	S	02C0123	N/A	05/07/02	05/08/02
MAGNESIUM LABORATORY	LC1 BS	S	02L0248	N/A	05/11/02	05/13/02
MAGNESIUM, TOTAL	MB1	S	02L0248	N/A	05/11/02	05/13/02
MANGANESE LABORATORY	LC1 BS	S	02L0248	N/A	05/11/02	05/13/02
MANGANESE, TOTAL	MB1	S	02L0248	N/A	05/11/02	05/13/02
MOLYBDENUM LABORATOR	LC1 BS	S	02L0248	N/A	05/11/02	05/13/02
MOLYBDENUM, TOTAL	MB1	S	02L0248	N/A	05/11/02	05/13/02
NICKEL LABORATORY	LC1 BS	S	02L0248	N/A	05/11/02	05/13/02
NICKEL, TOTAL	MB1	S	02L0248	N/A	05/11/02	05/13/02
LEAD LABORATORY	LC1 BS	S	02L0248	N/A	05/11/02	05/13/02
LEAD, TOTAL	MB1	S	02L0248	N/A	05/11/02	05/13/02
SELENIUM LABORATORY	LC1 BS	S	02L0248	N/A	05/11/02	05/13/02
SELENIUM, TOTAL	MB1	S	02L0248	N/A	05/11/02	05/13/02
VANADIUM LABORATORY	LC1 BS	S	02L0248	N/A	05/11/02	05/13/02
VANADIUM, TOTAL	MB1	S	02L0248	N/A	05/11/02	05/13/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-050 H1760

DATE RECEIVED: 04/30/02 LVL LOT # :0204L529

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC LABORATORY	LC1 BS	S	02L0248	N/A	05/11/02	05/13/02
ZINC, TOTAL	MB1	S	02L0248	N/A	05/11/02	05/13/02
SILVER LABORATORY	LC1 BS	W	02L0241	N/A	05/08/02	05/08/02
SILVER, TCLP LEACHAT	MB1	W	02L0241	N/A	05/08/02	05/08/02
SILVER, TCLP LEACHAT	MB2	W	02L0241	N/A	05/08/02	05/08/02
SILVER, TCLP LEACHAT	MB3	W	02L0241	N/A	05/08/02	05/08/02
ARSENIC LABORATORY	LC1 BS	W	02L0241	N/A	05/08/02	05/08/02
ARSENIC, TCLP LEACHA	MB1	W	02L0241	N/A	05/08/02	05/08/02
ARSENIC, TCLP LEACHA	MB2	W	02L0241	N/A	05/08/02	05/08/02
ARSENIC, TCLP LEACHA	MB3	W	02L0241	N/A	05/08/02	05/08/02
BARIUM LABORATORY	LC1 BS	W	02L0241	N/A	05/08/02	05/08/02
BARIUM, TCLP LEACHAT	MB1	W	02L0241	N/A	05/08/02	05/08/02
BARIUM, TCLP LEACHAT	MB2	W	02L0241	N/A	05/08/02	05/08/02
BARIUM, TCLP LEACHAT	MB3	W	02L0241	N/A	05/08/02	05/08/02
CADMIUM LABORATORY	LC1 BS	W	02L0241	N/A	05/08/02	05/08/02
CADMIUM, TCLP LEACHA	MB1	W	02L0241	N/A	05/08/02	05/08/02
CADMIUM, TCLP LEACHA	MB2	W	02L0241	N/A	05/08/02	05/08/02
CADMIUM, TCLP LEACHA	MB3	W	02L0241	N/A	05/08/02	05/08/02
CHROMIUM LABORATORY	LC1 BS	W	02L0241	N/A	05/08/02	05/08/02
CHROMIUM, TCLP LEACH	MB1	W	02L0241	N/A	05/08/02	05/08/02
CHROMIUM, TCLP LEACH	MB2	W	02L0241	N/A	05/08/02	05/08/02
CHROMIUM, TCLP LEACH	MB3	W	02L0241	N/A	05/08/02	05/08/02
MERCURY LABORATORY	LC1 BS	W	02C0120	N/A	05/02/02	05/03/02
MERCURY, TOTAL	MB1	W	02C0120	N/A	05/02/02	05/03/02
MERCURY, TCLP LEACHA	MB2	W	02C0120	N/A	05/02/02	05/03/02
MERCURY, TCLP LEACHA	MB3	W	02C0120	N/A	05/02/02	05/03/02
LEAD LABORATORY	LC1 BS	W	02L0241	N/A	05/08/02	05/08/02
LEAD, TCLP LEACHATE	MB1	W	02L0241	N/A	05/08/02	05/08/02
LEAD, TCLP LEACHATE	MB2	W	02L0241	N/A	05/08/02	05/08/02
LEAD, TCLP LEACHATE	MB3	W	02L0241	N/A	05/08/02	05/08/02
SELENIUM LABORATORY	LC1 BS	W	02L0241	N/A	05/08/02	05/08/02
SELENIUM, TCLP LEACH	MB1	W	02L0241	N/A	05/08/02	05/08/02
SELENIUM, TCLP LEACH	MB2	W	02L0241	N/A	05/08/02	05/08/02
SELENIUM, TCLP LEACH	MB3	W	02L0241	N/A	05/08/02	05/08/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B02-050
LVL#: 0204L529
SDG/SAF#: H1760/B02-050

W.O.#: 11343-606-001-9999-00
Date Received: 04-30-02

METALS CASE NARRATIVE

1. This narrative covers the analyses of 1 soil sample and 1 TCLP leachate sample.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. All ICP TCLP samples were reported with a six fold dilution due to sample matrix.

3. All analyses were performed within the required holding times.

4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits.

6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).

7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

8. All ICP Interference Check Standards were within control limits.

9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

10. The matrix spike (MS) recovery for 1 analyte was outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A serial dilution is performed for Mercury. A PDS was prepared at meaningful concentration level for the following analytes:

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
B14DJ8	Manganese	2000	110.2

12. For the soil sample, the duplicate analyses for 3 analytes were outside the 20% Relative Percent Difference (RPD) control limits. For the TCLP sample, the duplicate analyses for 3 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

13. The TCLP extract from sample B14DJ8 was selected for the matrix spike (MS) for this analytical batch. All MS recoveries were greater than 50% as per method criteria.

14. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.

15. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

05-21-02
Date

gmb/m04-529

LVLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 0204L529

Leaching Procedure: __1310 ✓1311 __1312 __Other:_____

CLP Metals __ Digestion and __ Analysis Methods: __ILM03.0 __ILM04.0

Metals Digestion Methods: __3005A ✓3010A __3015 __3020A ✓3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	__6010B		__200.7				__99
Antimony	__6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	✓6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	✓6010B		__200.7				__99
Beryllium	✓6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	✓6010B		__200.7				__99
Cadmium	✓6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	__6010B		__200.7				__99
Chromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	__6010B		__200.7				__99
Copper	✓6010B	__7211 [5]	__200.7	__220.2			__99
Iron	__6010B		__200.7				__99
Lead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	✓6010B		__200.7				__99
Manganese	✓6010B		__200.7				__99
Mercury	✓7470A [3]	✓7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	✓6010B		__200.7				__99
Nickel	✓6010B		__200.7				__99
Potassium	__6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	✓6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	✓6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	__6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010B		__200.7				__99
Thallium	__6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
Tin	__6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [1]		__200.7 [1]			__1620	__99
Vanadium	✓6010B		__200.7				__99
Zinc	✓6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

*Other:*_____ *Method:*_____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

B = Indicates that the parameter was between the Instrument Detection Limit (IDL) and the Contract Required Detection Limit (CRDL)

Q QUALIFIERS

E = The reported value is estimated because of the presence of interference.

M = Duplicate injection precision not met.

N = Spiked sample recovery not within control limits.

S = The reported value was determined by the Method of Standard Additions (MSA).

W = Post Digestion spike for Furnace AA analysis is out of control limits (85 -115 %), while sample absorbance is less than 50% of spike absorbance.

* = Duplicate analysis not within control limits.

+ = Correlation coefficient for the MSA is less than 0.995.

ABBREVIATIONS

PB = Method or Preparation Blank.
S = Matrix Spike.
T = Matrix Spike Duplicate.
R or D = Sample Replicate

ANALYTICAL METAL METHODS

1. Not included in the method element list.
2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).
3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).
4. Flame AA.
5. Graphite Furnace AA.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/21/02

CLIENT: TNUHANFORD B02-050 H1760 LVL LOT #: 0204L529

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B14DJ8	Silver, Total	0.05 u	MG/KG	0.05	1.0
		Arsenic, Total	3.7	MG/KG	0.27	1.0
		Boron, Total	1.3	MG/KG	0.15	1.0
		Barium, Total	78.1	MG/KG	0.01	1.0
		Beryllium, Total	0.22	MG/KG	0.01	1.0
		Cadmium, Total	0.05	MG/KG	0.03	1.0
		Chromium, Total	8.9	MG/KG	0.05	1.0
		Copper, Total	13.5	MG/KG	0.03	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Magnesium, Total	4200	MG/KG	0.60	1.0
		Manganese, Total	348	MG/KG	0.01	1.0
		Molybdenum, Total	0.63	MG/KG	0.12	1.0
		Nickel, Total	9.9	MG/KG	0.1	1.0
		Lead, Total	7.1	MG/KG	0.18	1.0
		Selenium, Total	0.38 u	MG/KG	0.38	1.0
		Vanadium, Total	56.6	MG/KG	0.08	1.0
		Zinc, Total	45.0	MG/KG	0.04	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/21/02

CLIENT: TNUHANPORD B02-050 H1760 LVL LOT #: 0204L529

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B14DJ8	Silver, TCLP Leachate	3.0	u	UG/L	3.0	6.0
		Arsenic, TCLP Leachate	18.5		UG/L	15.0	6.0
		Barium, TCLP Leachate	394		UG/L	0.60	6.0
		Cadmium, TCLP Leachate	1.8	u	UG/L	1.8	6.0
		Chromium, TCLP Leachate	3.0	u	UG/L	3.0	6.0
		Mercury, TCLP Leachate	0.10	u	UG/L	0.10	1.0
		Lead, TCLP Leachate	10.2	u	UG/L	10.2	6.0
		Selenium, TCLP Leachate	21.0	u	UG/L	21.0	6.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/21/02

CLIENT: TNUHANFORD B02-050 H1760 LVL LOT #: 0204L529

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	02L0248-MB1	Silver, Total	0.05 u	MG/KG	0.05	1.0
		Arsenic, Total	0.25 u	MG/KG	0.25	1.0
		Boron, Total	0.14 u	MG/KG	0.14	1.0
		Barium, Total	0.11	MG/KG	0.01	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	0.06	MG/KG	0.05	1.0
		Copper, Total	0.03 u	MG/KG	0.03	1.0
		Magnesium, Total	1.6	MG/KG	0.56	1.0
		Manganese, Total	0.02	MG/KG	0.01	1.0
		Molybdenum, Total	0.11 u	MG/KG	0.11	1.0
		Nickel, Total	0.09 u	MG/KG	0.09	1.0
		Lead, Total	0.25	MG/KG	0.17	1.0
		Selenium, Total	0.35 u	MG/KG	0.35	1.0
		Vanadium, Total	0.07 u	MG/KG	0.07	1.0
		Zinc, Total	0.10	MG/KG	0.04	1.0
BLANK1	02C0123-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0
BLANK1	02L0241-MB1	Silver, TCLP Leachate	0.50 u	UG/L	0.50	1.0
		Arsenic, TCLP Leachate	2.5 u	UG/L	2.5	1.0
		Barium, TCLP Leachate	0.25	UG/L	0.10	1.0
		Cadmium, TCLP Leachate	0.30 u	UG/L	0.30	1.0
		Chromium, TCLP Leachate	0.50 u	UG/L	0.50	1.0
		Lead, TCLP Leachate	1.7 u	UG/L	1.7	1.0
		Selenium, TCLP Leachate	3.5 u	UG/L	3.5	1.0
BLANK2	02L0241-MB2	Silver, TCLP Leachate	3.0 u	UG/L	3.0	6.0
		Arsenic, TCLP Leachate	15.0 u	UG/L	15.0	6.0
		Barium, TCLP Leachate	2.6	UG/L	0.60	6.0
		Cadmium, TCLP Leachate	1.8 u	UG/L	1.8	6.0
		Chromium, TCLP Leachate	3.0 u	UG/L	3.0	6.0
		Lead, TCLP Leachate	10.2 u	UG/L	10.2	6.0
		Selenium, TCLP Leachate	21.0 u	UG/L	21.0	6.0
BLANK3	02L0241-MB3	Silver, TCLP Leachate	3.0 u	UG/L	3.0	6.0
		Arsenic, TCLP Leachate	15.0 u	UG/L	15.0	6.0
		Barium, TCLP Leachate	4.1	UG/L	0.60	6.0
		Cadmium, TCLP Leachate	1.8 u	UG/L	1.8	6.0
		Chromium, TCLP Leachate	3.0 u	UG/L	3.0	6.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/21/02

CLIENT: TNUHANFORD B02-050 H1760 LVL LOT #: 0204L529

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK3	02L0241-MB3	Lead, TCLP Leachate	10.2 u	UG/L	10.2	6.0
		Selenium, TCLP Leachate	21.0 u	UG/L	21.0	6.0
BLANK1	02C0120-MB1	Mercury, Total	0.10 u	UG/L	0.10	1.0
BLANK2	02C0120-MB2	Mercury, TCLP Leachate	0.10 u	UG/L	0.10	1.0
BLANK3	02C0120-MB3	Mercury, TCLP Leachate	0.10 u	UG/L	0.10	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/21/02

CLIENT: TNUHANFORD B02-050 H1760 LVL LOT #: 0204L529

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B14DJ8	Silver, Total	4.8	0.05u	5.4	88.9	1.0
		Arsenic, Total	191	3.7	216	87.0	1.0
		Boron, Total	91.3	1.3	108	83.5	1.0
		Barium, Total	264	78.1	216	86.5	1.0
		Beryllium, Total	4.9	0.22	5.4	86.7	1.0
		Cadmium, Total	4.8	0.05	5.4	88.0	1.0
		Chromium, Total	27.8	8.9	21.6	87.5	1.0
		Copper, Total	37.9	13.5	26.9	90.7	1.0
		Mercury, Total	0.16	0.02u	0.17	90.2	1.0
		Magnesium, Total	6540	4200	2700	87.0	1.0
		Manganese, Total	374	348	53.9	48.4*	1.0
		Molybdenum, Total	95.7	0.63	108	88.2	1.0
		Nickel, Total	56.5	9.9	53.9	86.5	1.0
		Lead, Total	54.7	7.1	53.9	88.3	1.0
		Selenium, Total	180	0.38u	216	83.5	1.0
		Vanadium, Total	99.7	56.6	53.9	80.0	1.0
		Zinc, Total	88.4	45.0	53.9	80.5	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/21/02

CLIENT: TNUHANFORD B02-050 H1760 LVL LOT #: 0204L529

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	B14DJ8	Silver, TCLP Leachate	2800	3.0 u	5000	56.0	6.0
		Arsenic, TCLP Leachate	4920	18.5	5000	98.1	6.0
		Barium, TCLP Leachate	90500	394	100000	90.1	6.0
		Cadmium, TCLP Leachate	1000	1.8 u	1000	100.1	6.0
		Chromium, TCLP Leachat	4870	3.0 u	5000	97.5	6.0
		Mercury, TCLP Leachate	187	0.10u	200	93.4	50.0
		Lead, TCLP Leachate	5000	10.2 u	5000	100.0	6.0
		Selenium, TCLP Leachat	976	21.0 u	1000	97.6	6.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/21/02

CLIENT: TNUHANFORD B02-050 H1760 LVL LOT #: 0204L529

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B14DJ8	Silver, Total	0.05u	0.05u	NC	1.0
		Arsenic, Total	3.7	3.4	8.5	1.0
		Boron, Total	1.3	1.0	26.1	1.0
		Barium, Total	78.1	75.7	3.1	1.0
		Beryllium, Total	0.22	0.18	18.3	1.0
		Cadmium, Total	0.05	0.09	54.0	1.0
		Chromium, Total	8.9	7.6	15.8	1.0
		Copper, Total	13.5	12.4	8.5	1.0
		Mercury, Total	0.02u	0.02u	NC	1.0
		Magnesium, Total	4200	3840	9.0	1.0
		Manganese, Total	348	333	4.4	1.0
		Molybdenum, Total	0.63	0.67	6.2	1.0
		Nickel, Total	9.9	8.9	10.6	1.0
		Lead, Total	7.1	6.5	8.8	1.0
		Selenium, Total	0.38u	0.38u	NC	1.0
		Vanadium, Total	56.6	50.6	11.2	1.0
		Zinc, Total	45.0	59.1	27.1	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/21/02

CLIENT: TNUHANFORD B02-050 H1760 LVL LOT #: 0204L529

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	B14DJ8	Silver, TCLP Leachate	3.0 u	3.4	NC 200	6.0
		Arsenic, TCLP Leachate	18.5	15.0 u	NC 200	6.0
		Barium, TCLP Leachate	394	394	0.051	6.0
		Cadmium, TCLP Leachate	1.8 u	1.8 u	NC	6.0
		Chromium, TCLP Leachate	3.0 u	5.8	NC 200	6.0
		Mercury, TCLP Leachate	0.10u	0.10u	NC	1.0
		Lead, TCLP Leachate	10.2 u	10.2 u	NC	6.0
		Selenium, TCLP Leachate	21.0 u	21.0 u	NC	6.0

5/21/02

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 05/21/02

CLIENT: TNUHANFORD B02-050 H1760 LVL LOT #: 0204L529

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	02L0248-LC1	Silver, LCS	48.0	50.0	MG/KG	96.0
		Arsenic, LCS	911	1000	MG/KG	91.1
		Boron, LCS	464	500	MG/KG	92.7
		Barium, LCS	476	500	MG/KG	95.1
		Beryllium, LCS	24.7	25.0	MG/KG	98.8
		Cadmium, LCS	23.9	25.0	MG/KG	95.6
		Chromium, LCS	49.2	50.0	MG/KG	98.4
		Copper, LCS	123	125	MG/KG	98.2
		Magnesium, LCS	2350	2500	MG/KG	94.0
		Manganese, LCS	74.6	75.0	MG/KG	99.5
		Molybdenum, LCS	486	500	MG/KG	97.1
		Nickel, LCS	193	200	MG/KG	96.4
		Lead, LCS	239	250	MG/KG	95.5
		Selenium, LCS	866	1000	MG/KG	86.6
		Vanadium, LCS	245	250	MG/KG	98.1
		Zinc, LCS	94.6	100	MG/KG	94.6
LCS1	02C0123-LC1	Mercury, LCS	2.4	2.5	MG/KG	96.6
LCS1	02L0241-LC1	Silver, LCS	486	500	UG/L	97.1
		Arsenic, LCS	9450	10000	UG/L	94.5
		Barium, LCS	4650	5000	UG/L	92.9
		Cadmium, LCS	252	250	UG/L	100.6
		Chromium, LCS	504	500	UG/L	100.9
		Lead, LCS	2490	2500	UG/L	99.6
		Selenium, LCS	9270	10000	UG/L	92.7
LCS1	02C0120-LC1	Mercury, LCS	5.2	5.0	UG/L	103.3

Lionville Laboratory Use Only
02O4L529

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-HANFORD B02-050

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 4-30-02 Date Due: 5-30-02

	A	B	C	D	E	F	G	H		I	J	K	L		
Refrigerator #	1	5	5	5	5	5	5	5		5	5	5	5		
#/Type Container – Liquid															
#/Type Container – Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG	1AG		1AG	1P	1AG	1AG	[illegible]	
Volume – Liquid														4	
Volume – Solid	250	250	250	250	120	250	120	250		120	L	250	120	+	
Preservatives	—	—	—	—	—	—	—	—		—	—	—	—	C	
ANALYSES REQUESTED →	ORGANIC: VOA	BNA	Pest/PCB	Herb	Pest TT	Alcohol Glyc Ket	Hex Chrom	INORG: Metal	CN	DRO GRO	IC Anions	TCLP Met	Hydrazine	LCA	
Lionville Laboratory Use Only	0624X	0625X	0PCB	0HBGN	0608N	0GCSC	ICRC6	MET(1)		0DRO 0GRO	INORG(1)	ITCLP	IHYZN	RCRATCW	

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624X	0625X	0PCB	0HBGN	0608N	0GCSC	ICRC6	MET(1)		0DRO 0GRO	INORG(1)	ITCLP	IHYZN	RCRATCW	
001	B14DJ8	✓	✓	S	4-23-02	1240	1	1	1	1	1	1	1	1		1	1	1	1		
002	B14DJ8 tclp of 001	✓	✓	L	*															✓	

* See Labchron

Special Instructions: SAF # B02-050

DATE/REVISIONS:
MET(1) 1. RCRA + Be, B, Cu, Mg, Mn, Mo, Ni, V, Zn
INORG(1) 2. ICFL, ICNO3, ICSO4, INH3N, IN3N2, ISFD
OGCSC 3. Alcohols, Glycols, + Ketones
4.
5.
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # See Below
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 1.5 °C

Relinquished by	Received by	Date	Time
Fed Ex	V. Hernandez	4-30-02	1005
[illegible]			

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES: 7905/5211/761

0204L 5 of 9

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-050-01	Page 1 of 2

Collector R. Fahlberg/R. Nielson	**Company Contact** Duane Jacques	**Telephone No.** 372-9651	**Project Coordinator** TRENT, SJ
Project Designation 216-Z-11 Ditch Borehole Samples	**Sampling Location** 200 West		**SAF No.** B02-050
Ice Chest No. ERC-02-008	**Field Logbook No.** EL-1517-	**COA** B20CW5674C	**Method of Shipment** Federal Express
Shipped To TMA/RECRA	**Offsite Property No.** APZ0488		**Bill of Lading/Air Bill No.** See OSPC

Price Code 8N **Data Turnaround** 45 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive Potential
Tie to B14DL7

Special Handling and/or Storage
Cool

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	aG	aG	aG	P	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	120mL	250mL	120mL	1000mL	120mL	250mL	120mL	250mL	250mL	250mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	See item (3) in Special Instructions.	Hydrazine - D1385	PCBs - 8082	Pesticides - 8081	Herbicides - 8150A	See item (4) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015 (Methanol)
Sample No. / **Matrix *** / **Sample Date** / **Sample Time**										
B14DJ8 / SOIL / 4-23-02 / 1240	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Fahlberg R Fahlberg	4-23-02 1615	Ref 1-A	4-23-02 1615
R of 1A 3728	4-29-02 0800	R Thorne	4-29-02 0800
R Thorne	4-29-02 0800	FedEx	
FedEx	4-30-02 1005		4-30-02 1005

Sign/Print Names

SPECIAL INSTRUCTIONS
See COC comments on SAF

(1) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Boron, Copper, Magnesium, Manganese, Molybdenum, Nickel, Vanadium, Zinc}; Mercury - 7470 - (CV)
(3) IC Anions - 300.0 {Fluoride, Nitrate, Sulfate}; Ammonia - 350.3; NO2/NO3 - 353.1; Sulfides - 9030
(4) VOA - 8260A (TCL); VOA - 8260A (Add-On) {Trichloromonofluoromethane}; VOA - 8260A (App IX Add-On) {Tetrahydrofuran}

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4-29-02

Matrix *
S=Soil
SD=Sediment
SO=Solid
SL=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-050-01	Page 2 of 2

Collector	Company Contact / Telephone No.	Project Coordinator	Price Code / Data Turnaround
R. Fahlberg/R. Nielson	Duane Jacques 372-9651	TRENT, SJ	8N / 45 Days
Project Designation	**Sampling Location**	**SAF No.**	**Air Quality** ☐
216-Z-11 Ditch Borehole Samples	200 West	B02-050	
Ice Chest No. ERC 02-008	**Field Logbook No.** EL-1517- / **COA** B20CW5674C	**Method of Shipment** Federal Express	
Shipped To TMA/RECRA	**Offsite Property No.** AØZØØ88	**Bill of Lading/Air Bill No.** See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive Potential
Tie to B14DL7
Special Handling and/or Storage
Cool

Preservation	Cool 4C	Cool 4C	RT 4-23-02	None RT 4-24-02						
Type of Container	aG	aG		aG						
No. of Container(s)	1	1		1						
Volume	250mL RJN 4-16-02	120mL	1000mL RJN 4-16-02	120mL RJN 4/16/02						
SAMPLE ANALYSIS	See item (A) in Special Instructions. 5	TPH-Diesel Range - WTPH-D; TPH-Gasoline Range - WTPH-G	See item (B) in Special Instructions. 6	See item (D) in Special Instructions. 7						

Sample No.	Matrix*	Sample Date	Sample Time								
B14DJ8	SOIL	4-23-02	1240	X	X	X	X				

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg	4-23-02 1615	RT 1-A	4-23-02 1615
RT 1A 3728	4-24-02 0800	R.T. Trent	4-24-02 0800
R.T. Trent ERC	4-24-02 0800	TED EX	4-24-02
Fed Ex	4-30-02 1005	[illegible]	4-30-02 1005

SPECIAL INSTRUCTIONS
See COC comments on SAF
RJN 4-16-02
5(A) Semi-VOA - 8270A (TCL); Semi-VOA – 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate} Antimony-125
~~5(B) Gamma Spec - Complete (Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Niobium-94, Radium-226, Radium-228); Isotopic Thorium (Thorium-232); Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 – Total-Sr; Technetium-99; Tritium – HD; Isotopic Uranium~~
~~5(D) Isotopic Plutonium; Americium-241/Curium-244 (Americium-241); Americium-241/Curium-244 (Add-on) (Curium-245)~~
RT 4.24.02

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/24/02 RT

Matrix*
S=Soil
SD=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

2

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project:

DATE: 4.30.02

SAF# / SOW# / Release #: B02-050

Laboratory SDG #: 0204L529

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
3.	Airbill # recorded?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
5.	Sample containers are intact?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
6.	Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
7.	All samples on coc received?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
8.	All sample label information matches coc?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
10.	Shipment meets LvLJ Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12.	coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13.	coc faxed or emailed to client?	☐ Yes	☐ No	☐ N/A	☐ see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☐ N/A	☐ see Comment #

Cooler # / temp and Comments:

RE 2-008 1.5

Laboratory Sample Custodian:

Laboratory Project Manager:

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-050 H1760

DATE RECEIVED: 04/30/02 LVL LOT # :0204L529

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B14DJ8						
% SOLIDS	001	S	02L%S046	04/23/02	05/03/02	05/05/02
% SOLIDS	001 REP	S	02L%S046	04/23/02	05/03/02	05/05/02
FLUORIDE BY IC	001	S	02LIC036	04/23/02	05/24/02	05/24/02
FLUORIDE BY IC	001 REP	S	02LIC036	04/23/02	05/24/02	05/24/02
FLUORIDE BY IC	001 MS	S	02LIC036	04/23/02	05/24/02	05/24/02
NITRATE BY IC	001	S	02LIC036	04/23/02	05/24/02	05/24/02
NITRATE BY IC	001 REP	S	02LIC036	04/23/02	05/24/02	05/24/02
NITRATE BY IC	001 MS	S	02LIC036	04/23/02	05/24/02	05/24/02
CHROMIUM VI	001	S	02LVI013	04/23/02	05/03/02	05/03/02
CHROMIUM VI	001 REP	S	02LVI013	04/23/02	05/03/02	05/03/02
CHROMIUM VI	001 MS	S	02LVI013	04/23/02	05/03/02	05/03/02
CHROMIUM VI	001 MSD	S	02LVI013	04/23/02	05/03/02	05/03/02
SULFATE BY IC	001	S	02LIC036	04/23/02	05/24/02	05/24/02
SULFATE BY IC	001 REP	S	02LIC036	04/23/02	05/24/02	05/24/02
SULFATE BY IC	001 MS	S	02LIC036	04/23/02	05/24/02	05/24/02
HYDRAZINE	001	S	02LHZ006	04/23/02	05/03/02	05/03/02
HYDRAZINE	001 REP	S	02LHZ006	04/23/02	05/03/02	05/03/02
HYDRAZINE	001 MS	S	02LHZ006	04/23/02	05/03/02	05/03/02
NITRATE NITRITE	001	S	02LN3D28	04/23/02	05/21/02	05/21/02
NITRATE NITRITE	001 REP	S	02LN3D28	04/23/02	05/21/02	05/21/02
NITRATE NITRITE	001 MS	S	02LN3D28	04/23/02	05/21/02	05/21/02
AMMONIA	001	S	02LAMA09	04/23/02	05/21/02	05/21/02
AMMONIA	001 REP	S	02LAMA09	04/23/02	05/21/02	05/21/02
AMMONIA	001 MS	S	02LAMA09	04/23/02	05/21/02	05/21/02
SULFIDE	001	S	02LSD015	04/23/02	05/05/02	05/05/02
SULFIDE	001 REP	S	02LSD015	04/23/02	05/05/02	05/05/02
SULFIDE	001 MS	S	02LSD015	04/23/02	05/05/02	05/05/02
TCLP	001	S	02LTO210	04/23/02	05/01/02	05/02/02
LAB QC:						
FLUORIDE BY IC	MB1	S	02LIC036	N/A	05/24/02	05/24/02
FLUORIDE BY IC	MB1 BS	S	02LIC036	N/A	05/24/02	05/24/02
NITRATE BY IC	MB1	S	02LIC036	N/A	05/24/02	05/24/02
NITRATE BY IC	MB1 BS	S	02LIC036	N/A	05/24/02	05/24/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-050 H1760

DATE RECEIVED: 04/30/02 LVL LOT # :0204L529

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	MB1	S	02LVI013	N/A	05/03/02	05/03/02
CHROMIUM VI	MB1 BS	S	02LVI013	N/A	05/03/02	05/03/02
CHROMIUM VI	MB1 BSD	S	02LVI013	N/A	05/03/02	05/03/02
SULFATE BY IC	MB1	S	02LIC036	N/A	05/24/02	05/24/02
SULFATE BY IC	MB1 BS	S	02LIC036	N/A	05/24/02	05/24/02
HYDRAZINE	MB1	S	02LHZ006	N/A	05/03/02	05/03/02
HYDRAZINE	MB1 BS	S	02LHZ006	N/A	05/03/02	05/03/02
NITRATE NITRITE	MB1	S	02LN3D28	N/A	05/21/02	05/21/02
NITRATE NITRITE	MB1 BS	S	02LN3D28	N/A	05/21/02	05/21/02
AMMONIA	MB1	S	02LAMA09	N/A	05/21/02	05/21/02
AMMONIA	MB1 BS	S	02LAMA09	N/A	05/21/02	05/21/02
AMMONIA	MB1 BSD	S	02LAMA09	N/A	05/21/02	05/21/02
SULFIDE	MB1	S	02LSD015	N/A	05/05/02	05/05/02
SULFIDE	MB1 BS	S	02LSD015	N/A	05/05/02	05/05/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B02-050 H1760
LVL#: 0204L529

W.O.#: 11343-606-001-9999-00
Date Received: 04-30-02

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 soil sample.

2. The sample was prepared and analyzed in accordance with the methods indicated on the attached glossary.

3. Sample holding times as required by the method and/or contract were met with the exception of Hydrazine and Sulfide.

4. All results presented in this report are derived form samples that met LvLI's sample acceptance policy.

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Ammonia was within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike recoveries were within the 75-125% control limits.

8. The replicate analyses were within the 20% RPD control limit.

9. Results for solid samples are reported on a dry weight basis.

10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

05-31-02
Date

njp\i04-529

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 14 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	✓ D2216-80		__ ILMO4.0 (e)
% Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		✓ 3060A/7196A	
Corrosivity __ by coupon __ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		__ 9010B	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
Halides, Extractable Organic		__ 9020B	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Oil & Grease		__ 9071A	
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		__ 9045C	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		✓ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	

Other: Fluoride, Nitrate, Sulfate **Method:** EPA 300.0 (mod.)

Other: Hydrazine **Method** USAFSAM Report TR-82-29

Nitrate-Nitrite EPA 353.2 (mod.)

Ammonia EPA 350.3 (mod.)

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/31/02

CLIENT: TNUHANFORD B02-050 H1760 LVL LOT #: 0204L529

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B14DJ8	% Solids	92.8		%	0.01	1.0
		Fluoride by IC	1.3	u	MG/KG	1.3	1.0
		Nitrate by IC	24.2		MG/KG	1.35	1.0
		Chromium VI	0.43	u	MG/KG	0.43	1.0
		Sulfate by IC	4.2		MG/KG	1.3	1.0
		Hydrazine	1.0	u	MG/KG	1.0	1.0
		Nitrate Nitrite	5.3		MG/KG	0.22	1.0
		Ammonia, as N	2.9	u	MG/KG	2.9	1.0
		Sulfide	20.8	u	MG/KG	20.8	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/31/02

CLIENT: TNUHANFORD B02-050 H1760 LVL LOT #: 0204L529

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	02LIC036-MB1	Fluoride by IC	1.2 u	MG/KG	1.2	1.0
		Nitrate by IC	1.25 u	MG/KG	1.25	1.0
		Sulfate by IC	1.2 u	MG/KG	1.2	1.0
BLANK10	02LVI013-MB1	Chromium VI	0.40 u	MG/KG	0.40	1.0
BLANK10	02LHZ006-MB1	Hydrazine	1.0 u	MG/KG	1.0	1.0
BLANK10	02LN3D28-MB1	Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0
BLANK10	02LAMA09-MB1	Ammonia, as N	2.5 u	MG/KG	2.5	1.0
BLANK10	02LSD015-MB1	Sulfide	20.0 u	MG/KG	20.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/31/02

CLIENT: TNUHANFORD B02-050 H1760 LVL LOT #: 0204L529

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B14DJ8	Fluoride by IC	31.2	0.59	27.0	113.4	1.0
		Nitrate by IC	82.1	24.2	54.0	107.2	2.0
		Soluble Chromium VI	4.4	0.43u	4.3	96.9	1.0
		Insoluble Chromium VI	1120	0.43u	1180	95.3	100
		Sulfate by IC	33.2	4.2	27.0	107.4	1.0
		Hydrazine	5.1	1.0 u	5.4	94.3	1.0
		Nitrate Nitrite	9.4	5.3	4.4	94.8	2.0
		Ammonia, as N	105	2.9 u	112	93.5	1.0
		Sulfide	242	8.7	250	93.3	1.0
BLANK10	02LIC036-MB1	Fluoride by IC	25.4	1.2 u	25.0	101.8	1.0
		Nitrate by IC	24.0	1.25u	25.0	95.9	1.0
		Sulfate by IC	24.4	1.2 u	25.0	97.6	1.0
BLANK10	02LVI013-MB1	Soluble Chromium VI	3.9	0.40u	4.0	98.7	1.0
		Insoluble Chromium VI	1150	0.40u	1160	98.8	100
BLANK10	02LHZ006-MB1	Hydrazine	5.0	1.0 u	5.0	100.7	1.0
BLANK10	02LN3D28-MB1	Nitrate Nitrite	5.3	0.20u	5.0	105.4	1.0
BLANK10	02LAMA09-MB1	Ammonia, as N	95.0	2.5 u	100	95.0	1.0
		Ammonia, as N MSD	104	2.5 u	100	104.0	1.0
BLANK10	02LSD015-MB1	Sulfide	216	20.0 u	226	95.9	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 05/31/02

CLIENT: TNUHANFORD B02-050 H1760 LVL LOT #: 0204L529
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	02LAMA09-MB1	Ammonia, as N	95.0	104.0	9.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/31/02

CLIENT: TNUHANFORD B02-050 H1760 LVL LOT #: 0204L529

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B14DJ8	% Solids	92.8	93.4	0.66	1.0
		Fluoride by IC	1.3 u	1.3 u	NC	1.0
		Nitrate by IC	24.2	23.7	2.3	1.0
		Chromium VI	0.43u	0.43u	NC	1.0
		Sulfate by IC	4.2	4.1	1.2	1.0
		Hydrazine	1.0 u	1.1 u	NC	1.0
		Nitrate Nitrite	5.3	5.0	5.3	1.0
		Ammonia, as N	2.9 u	3.0 u	NC	1.0
		Sulfide	20.8 u	23.0 u	NC	1.0

Lionville Laboratory Use Only
0204L529

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc

Client TNU-HANFORD B02-050

Est. Final Proj. Sampling Date ______

Project # 11343-606-001-9999-00

Project Contact/Phone # ______

Lionville Laboratory Project Manager OJ

QC SPEC Del STD TAT 30 days

Date Rec'd 4-30-02 Date Due 5-30-02

		A	B	C	D	E	F	G	H		I	J	K	L		
Refrigerator #		1	5	5	5	5	5	5	5		5	5	5	5		
#/Type Container	Liquid															
	Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG	1AG		1AG	1PL	1AG	1AG	LEACHATE	
Volume	Liquid															
	Solid	250	250	250	250	120	250	120	250		120	L	250	120		
Preservatives		—	—	—	—	—	—	—	—		—	—	—	—		
ANALYSES REQUESTED →		ORGANIC VOA	BNA	Pest/PCB	Herb	Pest	Alcoh Glyc Ket	Herb Chlor	INORG Metal	CN	DRO GRO	IC Anions	TCLP Met	Ammonia	LEACH	
Lionville Laboratory Use Only		0624X	0625X	OPCB	OHBGN	060BN	OGCSC	ICRL6	MET ①		ODRO OGRO	INORG①	ITCLP	ZHYZN	RCRATCW	

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected	A	B	C	D	E	F	G	H		I	J	K	L	LEACH	
001	B14DJ8	✓	✓	S	4-23-02	1240	1	1	1	1	1	1	1	1		1	1	1	1		
002	B14DJ8 tclp of 001	✓	✓	L	*															✓	

* See Lab chron

Special Instructions: SAF # B02-050

DATE/REVISIONS:
MET① 1. RCRA + Be, B, Cu, Mg, Mn, Mo, Ni, V, Zn
INORG① 2. ICFL, ICNO3, ICSO4, INH3N, IN3N2, ISFD
OGCSC 3. Alcohols, Glycols, + Ketones
4.
5.
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # See Below
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 1.5 °C

Relinquished by	Received by	Date	Time
Fed Ex	V-Hernandez	4-30-02	1005

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES: 7905 5211 7761

U204CJ04

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B02-050-01	Page 1 of 2
Collector R. Fahlberg/R. Nielson	**Company Contact** Duane Jacques	**Telephone No.** 372-9651	**Project Coordinator** TRENT, SJ	**Price Code** 8N **Data Turnaround** 45 Days
Project Designation 216-Z-11 Ditch Borehole Samples	**Sampling Location** 200 West		**SAF No.** B02-050	**Air Quality** ☐
Ice Chest No. ERC-02-008	**Field Logbook No.** EL-1517-	**COA** B20CW5674C	**Method of Shipment** Federal Express	
Shipped To TMA/RECRA	**Offsite Property No.** AQ20688		**Bill of Lading/Air Bill No.** See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive Potential
Tie to B14DL7

Special Handling and/or Storage
Cool

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	aG	aG	aG	P	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	120mL	250mL	120mL	1000mL	120mL	250mL	120mL	250mL	250mL	250mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	See item (3) in Special Instructions.	Hydrazine - D1385	PCBs - 8082	Pesticides - 8081	Herbicides - 8150A	See item (4) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015 (Methanol)
Sample No.	**Matrix ***	**Sample Date**	**Sample Time**							
B14DJ8	SOIL	4-23-02	1240	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg/R. Nielson	4-23-02 1615	Ref 1-A	4-23-02 1615
Ref 1A 3728	4-29-02 0800	R.W. Thoren	4-29-02 0800
R.W. Thoren ERC	4-29-02 0800	FedEx	
FedEx	4-30-02 1005		4-30-02 1005

SPECIAL INSTRUCTIONS
See COC comments on SAF

(1) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Boron, Copper, Magnesium, Manganese, Molybdenum, Nickel, Vanadium, Zinc}; Mercury - 7470 - (CV)
(3) IC Anions - 300.0 {Fluoride, Nitrate, Sulfate}; Ammonia - 350.3; NO2/NO3 - 353.1; Sulfides - 9030
(4) VOA - 8260A (TCL); VOA - 8260A (Add-On) {Trichloromonofluoromethane}; VOA - 8260A (App IX Add-On) {Tetrahydrofuran}

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4-29-02

Matrix *
S=Soil
SD=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time	

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-050-01	Page 2 of 2

Collector	Company Contact / Telephone No.	Project Coordinator	Price Code / Data Turnaround
R. Fahlberg/R. Nielson	Duane Jacques 372-9651	TRENT, SJ	8N / 45 Days
Project Designation	**Sampling Location**	**SAF No.**	**Air Quality** ☐
216-Z-11 Ditch Borehole Samples	200 West	B02-050	
Ice Chest No. ERC 02-008	**Field Logbook No.** EL-1517-	**COA** B20CW5674C	**Method of Shipment** Federal Express
Shipped To TMA/RECRA	**Offsite Property No.** A0Z0088		**Bill of Lading/Air Bill No.** See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive Potential
Tie to B14DL7

Special Handling and/or Storage
Cool

Preservation	Cool 4C	Cool 4C	~~None~~ RT 4.24.02	~~None~~ RT 4.24.02						
Type of Container	aG	aG	P	aG						
No. of Container(s)	1	1	1	1						
Volume	250mL RJN 4-16-02	120mL	1000mL RJN 4-16-02	120mL RJN 4-16-02						
SAMPLE ANALYSIS	See item (1) in Special 5 Instructions.	TPH-Diesel Range - WTPH-D; TPH-Gasoline Range - WTPH-G	See item (2) in Special 6 Instructions.	See item (3) in Special 7 Instructions.						

Sample No.	Matrix *	Sample Date	Sample Time									
B14DJ8	SOIL	4-23-02	1240	X	X	X	X					

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Fahlberg R Fahlberg	4-23-02 1615	RT 1-A	4-23-02 1615
R Fahlberg	4-24-02 0800	R T Trent	4-24-02 0800
R T Trent	4-24-02 0800	ERC	4-24-02 0800
ERC	4-24-02	1-ED EX	4-24-02
Fed Ex	4-30-02 1005	V. Kennedy	4-30-02 1005

SPECIAL INSTRUCTIONS
See COC comments on SAF
RJN 4-16-02
(1) Semi-VOA - 8270A (TCL); Semi-VOA – 8270A (Add-on) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate} Antimony ~125
~~(2) Gamma Spec. Complete {Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Niobium-94, Radium-226, Radium-228}, Isotopic Thorium (Thorium-232), Carbon-14, Neptunium-237, Nickel-63, Strontium-89,90 – Total α, Technetium-99, Tritium – HD, Isotopic Uranium~~
~~(3) Isotopic Plutonium, Americium-241/Curium-244 (Americium-241), Americium-241/Curium-244 (Add-on) (Curium-243)~~
RT 4.24.02

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/24/02 RT

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (03/01/2002)

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project:

DATE: 4·30·02

SAF# / SOW# / Release #: B02-050

Laboratory SDG #: 0204L529

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
3.	Airbill # recorded?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
5.	Sample containers are intact?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
6.	Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
7.	All samples on coc received?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
8.	All sample label information matches coc?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
10.	Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12.	coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13.	coc faxed or emailed to client?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☑ N/A	☐ see Comment #

Cooler # / temp and Comments:

RE 7-008 1·5°C

Laboratory Sample Custodian: Vicki Kennedy

Laboratory Project Manager: